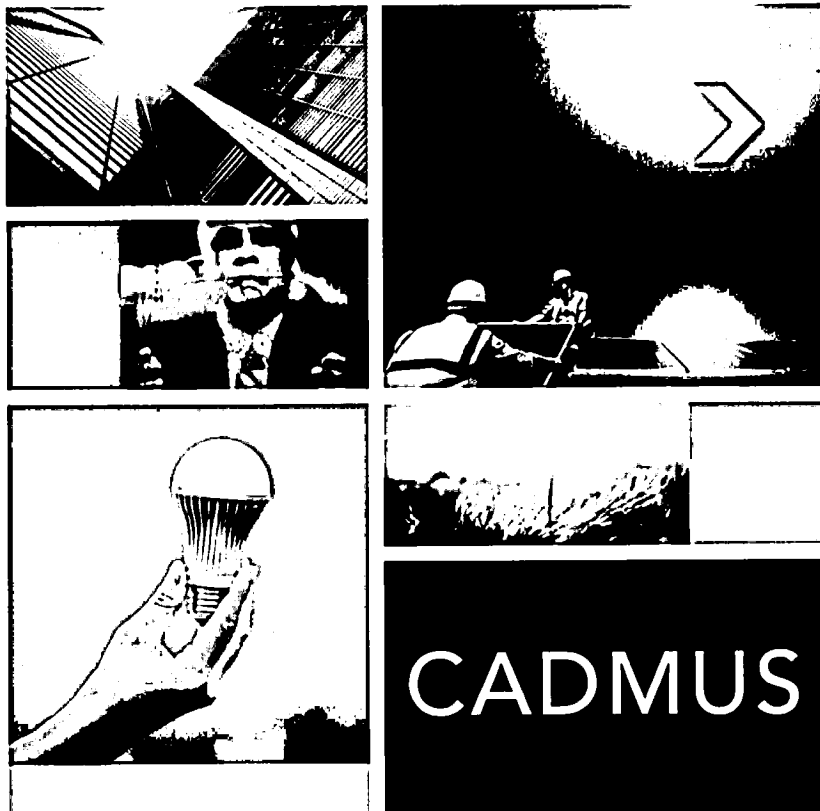


RECEIVED

DEC 06 2013

PUBLIC SERVICE
COMMISSION



In Collaboration with: EHI Consultants

Energy Efficiency Potential Study: Volume II

December 2013

Louisville Gas and Electric Company and Kentucky Utilities Company
220 West Main Street
Louisville, Kentucky 40202

This page left blank.

CADMUS



**Prepared by:
Cadmus
EHI, Inc.**

Cadmus: Energy Services Division

This page left blank.

Appendix A. Data Collection Instruments

LG&E/KU Residential Survey

Objectives and Approach

To inform the energy-efficiency potential study and future program design, Cadmus will conduct telephone surveys with 400 residential Louisville Gas & Electric and Kentucky Utilities customers. Cadmus will use the surveys to assess general attitudes toward energy efficiency and to gather information on program awareness, perceptions, and important factors that affect energy-efficiency decision making. The surveys will also be used to gather data to supplement existing saturation data and collect general demographic information. The survey is designed to explore the research topics presented in Table 1.

Table 1. Residential Research Topics

Key Areas of Investigation	Research Topic	Survey Questions
Assess awareness, perceptions, actions related to energy efficiency	• Awareness and knowledge of energy efficiency/saving energy	4, 5, 6
	• Concern and personal responsibility for saving energy	7
	• Actions taken to save energy	14, 15, 16, 17
	• Motivations to save energy	8, 18
	• Barriers to saving energy	13
Assess efficiency program awareness and perceptions	• Awareness of energy-efficiency programs	6
	• Previous participation in energy-efficiency programs	9
	• Information sources for program information	12
Assess key factors affecting program participation	• Major factors influencing participation in energy-efficiency program, including rebates	10, 19
	• If aware but not participating: major factors influencing decision not to participate	11
	• Willingness to participate in programs	19
Gather supplemental saturation data	• Recent equipment purchases	20b, 21b, 22b
	• Heating system and fuel type	20, 20a
	• Cooling system type	21, 21a
	• Water heating system type	22, 22a
	• Consumer electronics	23, 24, 25
	• Data on "high efficiency" equipment for CAC, heat pump, storage tank water heat	20a, 20b, 21a, 21b, 22a, 22b
Gather customer demographic and household information	<ul style="list-style-type: none"> • Building type • Own or rent home • Age of home • Size of home (including # of stories) • Number of people living in household • Age of respondent • Internet access at home 	3, 26, 27, 28, 29, 30, 31, 32

Key

[RED TEXT] – Instructions for programmer

[GREEN TEXT] – Instructions for interviewer

[BLUE TEXT] – Data to be pulled from sample

Introduction and Screening

Hello, may I speak with [CONTACT NAME]? My name is [INTERVIEWER NAME] and I'm calling from EHI on behalf of [LG&E or KU]. We would like you to take part in an important study to better understand how Kentucky residents use energy at home. Your participation in this study will help [LG&E or KU] design programs to save you energy and money. This is not a sales call and your answers are confidential.

[IF RESPONDENT ASKS "HOW LONG": This survey should take about 10-12 minutes.]

1. Are you a person in your household who would be very likely to be involved in making decisions about how you use energy at home, such as buying appliances, heating equipment, or making your home more energy efficient? [ELECTRIC AND GAS / ELECTRIC / GAS]
 1. Yes [CONTINUE]
 2. No [ASK IF YOU CAN SPEAK TO THE PERSON WHO WOULD BE INVOLVED. IF AVAILABLE, REPEAT INTRODUCTION AND CONTINUE. IF NOT AVAILABLE, SCHEDULE BETTER TIME TO CALL BACK.]
 98. Don't know [ASK IF YOU CAN SPEAK TO THE PERSON WHO WOULD BE INVOLVED. IF AVAILABLE, REPEAT INTRODUCTION AND CONTINUE. IF NOT AVAILABLE, SCHEDULE BETTER TIME TO CALL BACK.]
 99. Refused [THANK AND TERMINATE]

2. Can you verify that [LG&E or KU] currently provides your [ELECTRIC AND GAS / ELECTRIC / GAS] service?
 1. Yes
 2. No
 98. Don't know
 99. Refused

3. Which of the following best describes your home? [IF QUOTA FOR HOUSING TYPE REACHED, READ: We have already reached our quota for [SINGLE FAMILY / MULTIFAMILY / MOBILE] homes. Thank you for your time.]
 1. Single-family home (SF)
 2. Apartment or townhome (MF)
 3. Condominium (MF)
 4. Duplex (MF)
 5. Mobile home (MH/MAN)
 98. Don't know
 99. Refused

Awareness and Knowledge

First, I'd like to ask you some general questions about energy efficiency. There are no right or wrong answers to any of the questions in this survey, so please just give me your best response.

[THROUGHOUT THE SURVEY, MAKE SURE RESPONDENTS HERE ARE FOCUSING ON ENERGY— THAT IS, ELECTRIC AND NATURAL GAS USAGE, NOT WATER. PLEASE DIRECT THEM BACK TO ENERGY USAGE IF THEY START TALKING ABOUT WATER USAGE.]

4. First, how knowledgeable are you with all the ways that you can save energy in your home? Would you say you are...?
 1. Very knowledgeable
 2. Somewhat knowledgeable
 3. Not too knowledgeable
 4. Not at all knowledgeable
 98. Don't know
 99. Refused

5. Are you aware of any governmental agencies or electric or gas utilities that sponsor programs or give rebates, tax credits, or discounts on services to help you save energy at home?
 1. Yes
 2. No [SKIP TO Q7]
 98. Don't know [SKIP TO Q7]
 99. Refused [SKIP TO Q7]

6. For each of the following energy-efficiency programs, please tell me if you had heard of it before my call today. [RANDOMIZE LIST] [1 = Yes, 2 = No, 98 = Don't know, 99 = Refused]
 - a. Home Performance with Energy Star or KY Home Performance
 - b. Energy-Saving New Homes Program (or ENERGYSTAR New Homes Program)
 - c. A/C Testing and Tune-up Program
 - d. Fridge and Freezer Recycling Program
 - e. Home Energy Analysis Program
 - f. Home Energy Rebates Program [DO NOT READ, FOR INTERVIEWER'S REFERENCE: ENERGY STAR appliances, HVAC equipment, window film]
 - g. High Efficiency Lighting Program
 - h. Demand Conservation Program (or Demand Response Program)

- i. WeCare Program

Concern and Personal Responsibility

7. Now, I'd like you to tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with each of the following statements. [RANDOMIZE] [1 = Strongly agree, 2 = Somewhat agree, 3 = Somewhat disagree, 4 = Strongly disagree, 98 = Don't know, 99 = Refused]
- a. I worry I won't be able to afford my energy bills.
 - b. I worry that the cost of energy for my home will go up.
 - c. I am concerned that how I use energy at home affects the environment.
 - d. Saving energy is a high priority in our home.
 - e. I worry how my household's use of energy affects climate change.
 - f. I feel it is my responsibility to use as little energy as I can to protect the environment.
 - g. I intend to take steps to cut my energy bills at home during the next three months.

Motivations to Save Energy

[ASK IF Q7d = 1, 2, OR 3]

8. Please rate how important each of the following reasons are for you to save energy at home. Tell me if each reason to save energy is very important, somewhat important, not too important, or not at all important to you. [RANDOMIZE] [1 = Very important, 2 = Somewhat important, 3 = Not too important, 4 = Not at all important, 98 = Don't know, 99 = Refused]
- a. To save money on your energy bills.
 - b. To be more green or to do your part to help the environment.
 - c. To make sure future generations have enough energy.
 - d. To reduce our dependence on foreign oil.
 - e. To not waste.
 - f. To make your energy bills more predictable.
 - g. To improve the comfort or health of your home.

Efficiency Program Awareness and Experience

[SKIP IF Q5 = 2]

9. Have you ever received a rebate, tax credit, or discount on services from a utility or government energy-efficiency program?

1. Yes
2. No
98. Don't know
99. Refused

[ASK IF Q9 = 1]

10. What are the most important reasons you decided to participate in the utility or government energy-efficiency program? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. To learn how my home uses energy
2. To save energy
3. To save money on utility bills
4. To obtain a rebate or program incentive
5. To replace old equipment
6. To replace broken equipment
7. To get more efficient equipment
8. To acquire the latest technology
9. To reduce maintenance costs
10. To increase comfort in the home
11. Previous experience with other utility programs
12. To help protect the environment
13. Recommended by contractors/trade allies
14. Recommended by family, friend, co-worker or neighbor
15. Part of a broader remodeling or renovation
16. Program was sponsored by [LG&E or KU]
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

[ASK IF Q5 = 1 AND Q9 = 2]

11. What are the most important reasons you have not participated in these types of programs? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Nothing left to do/home is already efficient
2. Can't afford it/too expensive
3. Inconvenient, don't have the time, too busy
4. Don't know what to do/don't have the right information
5. Home has challenges in its construction or age

6. Too hard to install/implement
7. Not confident I'll save energy/it will be worth it
8. Afraid it will make us uncomfortable
9. Challenges with contractors
10. Saving energy is not that important
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

12. What is the best way to inform customers like you about programs to help you save energy at home? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Bill insert from utility
2. TV or radio advertisement by utility/efficiency program
3. Newspaper advertisement by utility/efficiency program
4. Phone call from utility staff
5. Local organization
6. Event
7. Word of mouth (friend, family member, neighbor, or co-worker)
8. Internet/Website
9. Advertising by a participating auditor/contractor
10. Direct contact with a participating auditor/contractor
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

Barriers

[ASK IF Q7d = 1, 2, OR 3]

13. What obstacles, if any, do you face in trying to save energy in your home? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Nothing left to do/home is already efficient
2. Can't afford it/too expensive
3. Inconvenient, don't have the time, too busy
4. Don't know what to do/don't have enough information
5. Home has challenges in its construction or age
6. Too hard to install/implement
7. Not confident I'll save energy/it will be worth it
8. Afraid it will make us uncomfortable
9. Challenges with contractors
10. Saving energy is not that important/don't face any obstacles
97. Other [SPECIFY: _____]
98. Don't know

99. Refused

Energy Behaviors

Next, I have more specific questions about how you use energy in your home.

14. Can you please tell me which of the following things related to how your home uses energy you have done in the past year? [RANDOMIZE LIST] [1 = Yes, 2 = No, 98 = Don't know, 99 = Refused]

- a. Replaced light bulbs with Compact Fluorescent Light (or CFL) bulbs – these bulbs often have a spiral or swirly shape
- b. Replaced light bulbs with LED bulbs
- c. Increased the levels of insulation in your home, such as in the attic and walls
- d. Reduced air leaks, such as adding weatherstripping, caulking windows, or adding storm windows
- e. Purchased efficient appliances (such as a refrigerator, dishwasher, etc.)
- f. Purchased an efficient water heater
- g. Installed low flow shower heads or faucet aerators
- h. Installed water heater tank wrap or pipe insulation
- i. Installed new windows
- j. Had an energy assessment of your home

15. And which of these actions do you consistently take at home...? By consistently, I mean you do these things all or almost all the time throughout the year. [RANDOMIZE LIST] [1 = Yes, 2 = No, 98 = Don't know, 99 = Refused]

- a. Turn off lights when not in use
- b. Unplug electronic devices, adapters, or chargers when not in use
- c. Wash clothes in cold water
- d. Air dry laundry
- e. Take shorter showers

f. Turn down the temperature on your water heater
16. Have you ...? [RANDOMIZE LIST] [1 = Yes, 2 = No, 98 = Don't know, 99 = Refused]

- a. Maintained or tuned-up heating or cooling equipment
- b. Used the sleep feature on computers and other electronics

17. Have you installed a programmable thermostat?

- 1. Yes [SKIP TO Q18]
- 2. No
- 98. Don't know
- 99. Refused

17a. Do you manually adjust the thermostat setting at night or when you are away?

- 1. Yes
- 2. No
- 98. Don't know
- 99. Refused

[ASK IF Q14, Q15, Q16, OR Q17 HAVE AT LEAST ONE "YES" RESPONSE]

18. What are the most important reasons you took these steps related to how you use energy at home?
[DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

- 1. To learn how my home uses energy
- 2. To save energy
- 3. To save money on utility bills
- 4. To obtain a rebate or program incentive
- 5. To replace old equipment
- 6. To replace broken equipment
- 7. To get more efficient equipment
- 8. To acquire the latest technology
- 9. To reduce maintenance costs
- 10. To increase comfort in the home
- 11. Previous experience with other utility programs
- 12. To help protect the environment
- 13. Recommended by contractors/trade allies
- 14. Recommended by family, friend, co-worker or neighbor
- 15. Part of a broader remodeling or renovation
- 97. Other [SPECIFY: _____]
- 98. Don't know

99. Refused

Willingness to Pay

19. Generally, it costs more to purchase energy-efficient products compared to products that meet the minimum requirements for energy efficiency. [RANDOMIZE LIST OF OPTIONS] [1= Very likely, 2= Somewhat likely, 3= Somewhat unlikely, 4= Very unlikely]

Options	i. Without a utility incentive, how likely would you be to install energy-efficient [OPTION] in the next five years? [IF RESPONSE > 1, ASK ii]	ii. What if your utility paid 50% of the cost to upgrade to the energy efficient model? [IF RESPONSE > 1, ASK iii] [IF NEEDED, PROVIDE INITIAL COST DIFFERENCE]	iii. How about if the incentive were 75% of the cost to upgrade? [IF NEEDED, PROVIDE INITIAL COST DIFFERENCE]	Initial Cost Difference
19a. Lighting, such as (CFLs)				\$3 for 19W CFL (equivalent to 75W incandescent bulb)
19b. Central Air Conditioning				\$700 for Central A/C
19c. Space Heating, such as a furnace				\$207 for gas furnace; \$4,937 for electric furnace to ASHP conversion
19d. Appliances, such as a refrigerator				\$30 for top-mount refrigerator w/o ice dispenser
19e. Weatherization, such as energy efficient insulation				\$1,880 for ceiling insulation for a 2,000 sq.ft. home

Saturation and Intentions to Purchase Equipment

Now, I would like to ask you about the type of equipment and electronics you have in your home.

20. What is the primary type of heating system in your home? [READ LIST IF NEEDED, PROBE FOR FUEL TYPE AND DETAILS, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Natural gas central forced air furnace
2. Natural gas hot water boiler (with radiators, baseboards or in the floor); also called natural gas hydronic heating
3. Electric hot water boiler (with radiators, baseboards or in the floor); also called electric hydronic heating
4. Natural gas steam boiler (with radiators)
5. Natural gas radiant floor heating
6. Natural gas fireplace or stove

7. Electric Baseboard, wall heaters (without fans), ceiling cables, or floor cables
8. Electric wall heaters with fans
9. Electric central forced air furnace
10. Air-source Heat pump (Electric)
11. Ground-source heat pump (Electric)
12. Portable heaters (Electric)
13. None (No heating system)
97. Other system and fuel [SPECIFY: _____]
98. Don't know
99. Refused

[ASK IF Q20 = HEAT PUMP OR FURNACE]

- 20a. Is your [HEAT PUMP OR FURNACE] a high-efficiency unit?
1. Yes
 2. No
 98. Don't know
 99. Refused

[ASK IF Q20 = HEAT PUMP OR FURNACE]

- 20b. Can you tell me approximately when you installed the [HEAT PUMP OR FURNACE]?
1. Within the past year
 2. 1-3 years ago
 3. 3-5 years ago
 4. More than 5 years ago
 98. Don't know
 99. Refused

21. What is the primary type of cooling system in your home? [READ LIST IF NEEDED, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Central air conditioner
2. Air source heat pump
3. Ground source heat pump
4. Room air conditioners [SPECIFY NUMBER OF UNITS: _____]
5. Ductless mini-split air conditioner
6. Evaporative cooler (Swamp cooler)
7. Portable fans
8. Whole-house fan
9. Ceiling fans
10. None (no cooling system)
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

[ASK IF Q21 = CAC]

21a. Is your central A/C a high-efficiency unit?

1. Yes
2. No
98. Don't know
99. Refused

[ASK IF Q21 = CAC OR HEAT PUMP]

21b. Can you tell me approximately when you installed the central A/C?

1. Within the past year
2. 1-3 years ago
3. 3-5 years ago
4. More than 5 years ago
98. Don't know
99. Refused

22. What type of water heater do you have in your home? [READ TYPES FROM LIST IF NEEDED, PROBE FOR FUEL TYPE]

1. Storage tank (this is the "standard" type with a water storage tank (Electric)
2. Storage tank (this is the "standard" type with a water storage tank (Natural gas)
3. Tankless (also called a demand or instantaneous water heater) (Electric)
4. Tankless (also called a demand or instantaneous water heater) (Natural gas)
5. Solar
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

[ASK IF Q22 = STORAGE TANK]

22a. Is your storage tank water heater a high-efficiency unit?

1. Yes
2. No
98. Don't know
99. Refused

[ASK IF Q22 = STORAGE TANK]

22b. Can you tell me approximately when you installed the water heater?

1. Within the past year
2. 1-3 years ago
3. 3-5 years ago
4. 6-10 years ago
5. More than 10 years ago
98. Don't know
99. Refused

23. Do you have a set-top box for cable or satellite television?

1. Yes
2. No [SKIP TO Q24]
98. Don't know [SKIP TO Q24]
99. Refused [SKIP TO Q24]

23a. How many set-top boxes do you have in your home?

[SPECIFY QUANTITY: _____]

98. Don't know
99. Refused

24. Do you have a home audio system?

1. Yes
2. No [SKIP TO Q25]
98. Don't know [SKIP TO Q25]
99. Refused [SKIP TO Q25]

24a. How many home audio systems do you have in your home?

[SPECIFY QUANTITY: _____]

98. Don't know
99. Refused

25. Do you have a computer in your home?

1. Yes
2. No [SKIP TO Q26]
98. Don't know [SKIP TO Q26]
99. Refused [SKIP TO Q26]

25a. How many computers do you have in your home?

[SPECIFY QUANTITY: _____]

98. Don't know
99. Refused

25b. How many computer monitors do you have in your home?

[SPECIFY QUANTITY: _____]

98. Don't know
99. Refused

Home Characteristics and Demographics

We're almost finished. I just have a few questions about your household to make sure we're getting a representative sample of residents in your area.

26. Do you own or rent your home?

1. Own
2. Rent
98. Don't know
99. Refused

27. When was your home built? If you don't know exactly, an estimate is fine.

[RECORD RESPONSE: _____]

98. Don't know
99. Refused

28. What is the approximate square footage of your home?

[RECORD RESPONSE: _____]

98. Don't know
99. Refused

29. How many stories is your home, not including an unfinished attic, unfinished basement, or garage?

1. 1
2. 2
3. 3
4. More than 3
98. Don't know
99. Refused

30. Including yourself, how many people live in your home year-round?

[RECORD RESPONSE: _____]

98. Don't know
99. Refused

31. Please tell me which of the following categories contains your age.

1. Under 18
2. 18-34
3. 35-65
4. Over 65
98. Don't know
99. Refused

32. Do you have internet access at home?

1. Yes
2. No
98. Don't know
99. Refused

Those are all the questions I have for you today. I would like to thank you for your time and the valuable information you provided.

LG&E/KU Commercial Survey

Objectives and Approach

To inform the energy-efficiency potential study and future program design, Cadmus will conduct telephone surveys with 200 commercial (office, retail, and restaurant) Louisville Gas & Electric and Kentucky Utilities customers. Cadmus will use the surveys to assess general attitudes toward energy efficiency and to gather information on program awareness, perceptions, and important factors that affect energy-efficiency decision making. The surveys will also be used to gather data to supplement existing saturation data and collect information on building characteristics. The survey is designed to explore the research topics presented in Table 1.

Table 2. Commercial Research Topics

Key Areas of Investigation	Research Topic	Survey Questions
Assess general attitudes toward energy efficiency	• Consideration of energy-efficient options	4, 37, 54
	• Company budget for energy-efficiency	38, 39
	• Recent efficient equipment purchases, actions taken to save energy	40, 41, 42, 43
	• Intentions to purchase energy-efficient equipment	45
	• Motivations to save energy	44
	• Barriers to saving energy	0
Gather information on program awareness and perceptions	• Awareness of energy-efficiency programs	47, 48, 6
	• Previous participation in energy-efficiency programs	9
	• Information sources for program information	12
Assess important factors in decision making around participation	• Major factors that contributed to decision to participate	10
	• If aware of but not participating: major factors that contributed to decision not to participate in energy-efficiency programs	11
	• Willingness to participate in programs / influence of rebates	19
Gather data to supplement existing saturation data	• Heating system type and fuel	56, 20
	• Cooling system type	58
	• Water heater quantity, type, fuel type and tank size	59, 60
	• Primary lighting system type and controls	61, 23
	• Quantity of lighting installed by type	63
	• (For restaurants only) Cooking equipment quantities and fuel types	64, 65, 66, 67, 68, 69
Gather building characteristic information	<ul style="list-style-type: none"> • Building type (high rise, single floor, big box, etc.) • Facility type (office, retail, etc.) • Facility size (sq. ft and # of stories) • % of heated and cooled floor space • Hours of operation 	35, 70, 71, 72, 73, 74, 75, 76

Key

[RED TEXT] – Instructions for programmer

[GREEN TEXT] – Instructions for interviewer

[BLUE TEXT] – Data to be pulled from sample

Introduction and Screening

Hello, may I speak with [CONTACT NAME]?

My name is [INTERVIEWER NAME] and I'm calling from EHI on behalf of [LG&E or KU]. We are conducting an important study to better understand how commercial customers use energy. This is not a sales call and your answers are confidential and will help [LG&E or KU] design programs to help you save energy and money.

[IF RESPONDENT ASKS "HOW LONG": This survey should take about 10-15 minutes.]

33. Are you the person in your organization who is responsible for energy-related decisions? [IF NEEDED: This would be the person who oversees spending on [ELECTRICITY/GAS/ELECTRICITY AND GAS] and energy-consuming equipment such as lighting and heating. It could be the director of facilities or operations, engineer or operations manager, the senior financial officer, or the owner.]

1. Yes [RECORD NAME AND TITLE: _____] [SKIP TO INTRODUCTION BEFORE Q35]
2. No
100. Don't know
101. Refused [THANK AND TERMINATE]

34. Could I speak to the person who is responsible for energy-related decisions?

1. Yes [RECORD NAME AND TITLE: _____]
2. No [THANK AND TERMINATE]
100. Don't know [THANK AND TERMINATE]
101. Refused [THANK AND TERMINATE]

Thank you in advance for your time. To give you a little background, we are speaking with commercial [LG&E or KU] customers to learn about energy-efficiency preferences and the types of equipment you currently have in your facility. This survey should take about 10-15 minutes. Is now a good time to talk, or is there a better time I can call you back? [SCHEDULE TIME TO CALL BACK OR CONTINUE]

35. Which of the following best describes your facility type? [READ APPROPRIATE OPTIONS FROM LIST BASED ON RESPONDENT TYPE]

1. Small office
2. Large office
3. Small retail
4. Multi-story later retail (e.g. department store)
5. Single-story large retail (e.g. Wal-Mart)

- 6. Quick service restaurant
- 7. Full service restaurant
- 97. Other [SPECIFY: _____]
- 98. Don't know
- 99. Refused

General Attitudes and Experience

First, I'd like to ask you some general questions about how your facility thinks about energy. There are no right or wrong answers to any of the questions in this survey, so please just give me your best response. [THROUGHOUT THE SURVEY, MAKE SURE RESPONDENTS HERE ARE FOCUSING ON ENERGY — THAT IS, ELECTRIC AND NATURAL GAS USAGE, NOT WATER. PLEASE DIRECT THEM BACK TO ENERGY USAGE IF THEY START TALKING ABOUT WATER USAGE.]

36. Please tell me how extensively you would say your organization has evaluated possible energy-efficiency upgrades when purchasing new equipment, undertaking facility renovations, or making other major capital improvements. Would you say that you...?

- 1. Evaluated possible energy-efficiency upgrades extensively
- 2. Evaluated possible energy-efficiency upgrades somewhat extensively
- 3. Did not evaluate possible energy-efficiency upgrades very extensively
- 4. Did not evaluate possible energy-efficiency upgrades as all
- 100. Don't know
- 101. Refused

37. What are the main things your company considers when deciding whether or not to invest in energy-saving measures? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

- 1. We don't consider investing in energy-saving measures
- 2. Ease of installation
- 3. Management support
- 4. First cost of energy-saving measures
- 5. Financial returns
- 6. Utility rebate programs
- 7. Expected business benefits/improvements
- 8. Sustainable business practices/ "green" marketing
- 9. Know someone who has done it successfully
- 97. Other [SPECIFY: _____]
- 98. Don't know
- 99. Refused

38. Does your capital budget include money for making energy-efficient upgrades?

- 1. Yes
- 2. No
- 98. Don't know

99. Refused
39. How about your operating budget? Does your operating budget include money for making energy-efficiency upgrades?
1. Yes
 2. No
 98. Don't know
 99. Refused
40. In the past 5 years, has your organization installed any energy-efficient equipment?
1. Yes
 2. No [SKIP TO Q42]
 98. Don't know [SKIP TO Q42]
 99. Refused [SKIP TO Q42]
41. What type of energy-efficient equipment was installed? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]
1. Efficient lighting systems
 2. Efficient air conditioner
 3. Efficient heating
 4. Efficient ventilation
 5. Efficient building envelop improvements
 6. Efficient motors
 7. Efficient refrigeration
 8. Efficient air compression
 97. Other [SPECIFY: _____]
 98. Don't know
 99. Refused
42. Has your organization taken any other steps to save energy?
1. Yes
 2. No [SKIP TO Q44]
 98. Don't know [SKIP TO Q44]
 99. Refused [SKIP TO Q44]
43. What steps have you taken? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]
1. Had an energy audit/assessment/analysis
 2. Turn off lights when not in use
 3. Use sleep feature on computers or other electronics
 4. Unplug electronics when not in use
 5. Adjust thermostat settings when building is not occupied
 6. Maintained or tuned-up heating or cooling equipment
 97. Other [SPECIFY: _____]
 98. Don't know
 99. Refused

[ASK IF Q40 OR Q42=1]

44. What are the primary reasons you decided to [INSTALL EFFICIENT EQUIPMENT AND/OR TAKE STEPS TO SAVE ENERGY]? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. To learn how my organization or building uses energy
2. To save energy
3. To save money on utility bills
4. To obtain a rebate or program incentive
5. To replace old equipment
6. To replace broken equipment
7. To get more efficient equipment
8. To acquire the latest technology
9. To reduce maintenance costs
10. To increase comfort in the building
11. Previous experience with other utility programs
12. To help protect the environment
13. Recommended by contractors/trade allies
14. Recommended by another retail/office/restaurant
15. Recommended by family, friend, co-worker or neighbor
16. Part of a broader remodeling or renovation
17. To support sustainable business practices / "green" marketing
18. Because the program was sponsored by [LG&E or KU]
100. Other [SPECIFY: _____]
101. Don't know
102. Refused

45. Does your facility have plans to install energy-efficient equipment in the next 5 years?

1. Yes
2. No
98. Don't know
99. Refused

Barriers

46. What obstacles do you face in trying to save energy at your facility? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Nothing left to do/facility is already efficient
2. Can't afford it/too expensive/don't have money in operating budget
3. Energy-efficient equipment is not sufficiently cost-effective
4. Inconvenient, don't have the time, too busy
5. Existing equipment works fine

6. Don't know what to do/don't have the right information
7. Building has challenges in its construction or age
8. Too hard to install/implement
9. Not confident I'll save energy/it will be worth it
10. Afraid it will make us uncomfortable
11. Challenges with contractors
12. Don't have management/corporate support for making energy-efficiency upgrades
13. Saving energy is not a priority at my organization
100. Other [SPECIFY: _____]
101. Don't know
102. Refused

Program Awareness and Experience

Now, I'm going to ask you some questions about programs that are designed to help you save energy.

47. Are you aware of governmental agencies or electric or gas utilities that have programs to help you save energy at your facility?

1. Yes
2. No
100. Don't know
101. Refused

48. What programs are you aware of? [DO NOT READ, ALLOW MULTIPLE RESPONSES]

1. LG&E/KU Commercial Energy Analysis Program
2. LG&E/KU Commercial Rebate Program
3. LG&E/KU programs (no specific program named)
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

[ASK ONLY FOR PROGRAMS NOT NAMED IN Q48]

49. I'm going to read you some names of energy-efficiency programs. Please tell me if you had heard of each one before my call today. [RANDOMIZE LIST] [1 = Yes, 2 = No, 98 = Don't know, 99 = Refused]

j. [LG&E or KU] Commercial Energy Analysis Program

k. [LG&E or KU] Commercial Rebate Program

50. To your knowledge, has your organization ever completed an energy analysis through your utility or received a rebate from your utility or other agency for purchasing efficient equipment? [ALLOW MULTIPLE RESPONSES]

1. Yes, had an energy analysis
2. Yes, purchased efficient equipment
3. No [SKIP TO Q11]

- 100. Don't know [SKIP TO Q11]
- 101. Refused [SKIP TO Q11]

[ASK IF Q9 = 1 or 2]

51. What are the primary reasons you decided to [RESPONSE FROM Q9]? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

- 1. To learn how my organization or building uses energy
- 2. To save energy
- 3. To save money on utility bills
- 4. To obtain a rebate or program incentive
- 5. To replace old equipment
- 6. To replace broken equipment
- 7. To get more efficient equipment
- 8. To acquire the latest technology
- 9. To reduce maintenance costs
- 10. To increase comfort in the building
- 11. Previous experience with other utility programs
- 12. To help protect the environment
- 13. Recommended by contractors/trade allies
- 14. Recommended by another retail/office/restaurant
- 15. Recommended by family, friend, co-worker or neighbor
- 16. Part of a broader remodeling or renovation
- 17. To support sustainable business practices / "green" marketing
- 18. Because the program was sponsored by [LG&E or KU]
- 97. Other [SPECIFY: _____]
- 98. Don't know
- 99. Refused

[ASK IF Q47 = YES AND Q9 = NO]

52. What are the primary reasons you have not participated in programs to help you save energy at your facility? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

- 1. Nothing left to do/facility is already efficient
- 2. Can't afford it/too expensive/don't have money in operating budget
- 3. Energy-efficient equipment is not sufficiently cost-effective
- 4. Inconvenient, don't have the time, too busy
- 5. Existing equipment works fine
- 6. Don't know what to do/don't have the right information
- 7. Building has challenges in its construction or age
- 8. Too hard to install/implement
- 9. Not confident I'll save energy/it will be worth it
- 10. Afraid it will make us uncomfortable

11. Challenges with contractors
12. Don't have management/corporate support for making energy-efficiency upgrades
13. Saving energy is not a priority at my organization
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

53. What is the best way to inform customers like you about programs to help you save energy at your facility? [DO NOT READ, ALLOW MULTIPLE RESPONSES, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Bill insert from utility
2. TV or radio advertisement by utility/efficiency program
3. Newspaper advertisement by utility/efficiency program
4. Phone call from utility staff
5. Local organization
6. Event
7. Word of mouth (other business, friend, family member, neighbor, or co-worker)
8. Internet/Website
9. Advertising by a participating auditor/contractor
10. Direct contact with a participating auditor/contractor
100. Other [SPECIFY: _____]
101. Don't know
102. Refused

Energy Behaviors

Next, I'd like to ask you a few specific questions about how you use energy in your facility.

54. When you buy new appliances or equipment that use energy at your facility, do you always, sometimes, rarely, or never consider the amount of energy they use?

1. Always
2. Sometimes
3. Rarely
4. Never
98. Don't know
99. Refused

Willingness to Pay

55. Energy-efficient equipment is typically more expensive to purchase, but in ongoing operations costs less due to reduced energy usage. [RANDOMIZE LIST OF OPTIONS] [1 = Very likely, 2 = Somewhat likely, 3 = Somewhat unlikely, 4 = Very unlikely]

Options	i.	ii.	iii.	% Cost Premium Over Base
	Without a utility incentive, how likely would you be to install energy efficient [OPTION] in the next five years? [IF RESPONSE > 1, ASK ii]	What if your utility paid 50% of the cost to upgrade to the energy efficient model? [IF RESPONSE > 1, ASK iii] [IF NEEDED, PROVIDE % COST PREMIUM OVER BASE]	How about if the incentive were 75% of the cost to upgrade? [IF NEEDED, PROVIDE % COST PREMIUM OVER BASE]	
19a. Lighting systems				5 - 15
19b. Air conditioning				10 - 25
19c. Space heating				5 - 20
19d. Ventilation				2 - 5
19e. Building envelope improvements				5 - 20
[ASK FOR RESTAURANT ONLY] 19f. Refrigeration				10 - 20

Saturation

Next, I would like to ask you a few questions about the types of equipment you have in your facility.

56. What is the primary fuel type used to heat your facility?

1. Electric
2. Natural gas
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

57. What is the primary type of heating system in your facility? [READ LIST IF NEEDED, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Hot water boiler
2. Steam boiler
3. Forced air furnace
4. Electric resistance baseboard
5. Heat pump
6. In-room packaged units
7. Rooftop packaged units
100. Other [SPECIFY: _____]
101. Don't know
102. Refused

[ASK IF Q20 = HEAT PUMP OR FURNACE]

20a. Is your [HEAT PUMP OR FURNACE] a high-efficiency unit?

- 3. Yes
- 4. No
- 100. Don't know
- 101. Refused

[ASK IF Q20 = HEAT PUMP OR FURNACE]

20b. Can you tell me approximately when you installed the [HEAT PUMP OR FURNACE]?

- 5. Within the past year
- 6. 1-3 years ago
- 7. 3-5 years ago
- 8. More than 5 years ago
- 100. Don't know
- 101. Refused

58. What is the primary type of cooling system in your facility? [READ LIST IF NEEDED, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

- 1. Central chilled water plant with constant volume air handler
- 2. Central chilled water plant with local VAV terminal units
- 3. Packaged rooftop units
- 4. Heat pumps
- 5. Wall or window in-room units
- 100. Other [SPECIFY: _____]
- 101. Don't know
- 102. Refused

[ASK IF Q58 = CAC OR HEAT PUMP]

58a. Is your [central A/C or heat pump] a high-efficiency unit?

- 3. Yes
- 4. No
- 100. Don't know
- 101. Refused

[ASK IF Q58 = CAC OR HEAT PUMP]

58b. Can you tell me approximately when you installed the [central A/C or heat pump]?

- 5. Within the past year
- 6. 1-3 years ago
- 7. 3-5 years ago
- 8. More than 5 years ago
- 100. Don't know
- 101. Refused

59. How many water heaters do you have in your facility?

[RECORD RESPONSE: _____]

- 100. Don't know

101. Refused

60. For each of the water heaters, please tell me the: [RECORD INFO FOR EACH WATER HEATER SEPARATELY AS 60ai-60aiii, 60bi-60bii, 60ci-60ciii, ETC.]

60ai. Water heater fuel type

1. Electric
2. Natural gas
3. Solar
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

60aii. Water heater type

1. Storage tank
2. Tankless
3. Solar
98. Don't know
99. Refused

60aiii. Water heater tank size

- [RECORD RESPONSE: _____]
98. Don't know
 99. Refused

61. What is the main type of lighting system used at your facility? [READ LIST IF NEEDED, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Incandescent
2. Compact fluorescent
3. T-8 overhead fluorescent
4. T-12 overhead fluorescent
5. Halogen
6. High intensity discharge (HID)
7. Daylighting
97. Other [SPECIFY: _____]
98. Don't know
99. Refused

62. What type of lighting controls, if any, do you have at your facility? [READ LIST IF NEEDED, RECORD VERBATIM IF RESPONSE DOES NOT MATCH CATEGORY]

1. Occupancy sensors
2. Dimmers
3. Electronic timers
4. Photosensors
5. None, it's all done manually
97. Other [SPECIFY: _____]

- 98. Don't know
- 99. Refused

63. Can you tell me how many of the following types of lighting you currently have installed in your facility? If you do not know for sure, an estimate is fine.

63a. Screw-based CFLs

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63b. LEDs

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63c. Incandescent bulbs

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63d. T5s

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63e. High performance T8s

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63f. T8s

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63g. T12s

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

63h. High intensity discharge fixtures

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

[ASK FOR RESTAURANTS ONLY]

64. How many commercial refrigerators do you have in your facility?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

[ASK FOR RESTAURANTS ONLY]

65. For each of the refrigerators, please tell what type of refrigerator it is. [IF NEEDED: Is it front opening with door, retail display, walk-in, or other?]

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

[ASK FOR RESTAURANTS ONLY]

66. How many commercial freezers do you have in your facility?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

[ASK FOR RESTAURANTS ONLY]

67. How many standard oven/ranges do you have in your facility?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

67a. What is the fuel type of each?

- 1. All electric
- 2. All natural gas
- 97. Other [RECORD QUANTITY OF ELECTRIC, NATURAL GAS, AND OTHER (SPECIFIED): _____]
- 98. Don't know
- 99. Refused

[ASK FOR RESTAURANTS ONLY]

68. How many commercial ranges do you have in your facility?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

68a. What is the fuel type of each?

- 1. All electric

- 2. All natural gas
- 97. Other [RECORD QUANTITY OF ELECTRIC, NATURAL GAS, AND OTHER (SPECIFIED): _____]
- 98. Don't know
- 99. Refused

[ASK FOR RESTAURANTS ONLY]

69. How many grills and/or fryers do you have in your facility?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

69a. What is the fuel type of each?

- 1. All electric
- 2. All natural gas
- 97. Other [RECORD QUANTITY OF ELECTRIC, NATURAL GAS, AND OTHER (SPECIFIED): _____]
- 98. Don't know
- 99. Refused

Building Characteristics

We're almost finished. I just have a few questions about your building.

70. What is the total square footage of your facility?

[RECORD RESPONSE: _____]

- 100. Don't know
- 101. Refused

71. How many stories is your building?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

72. What percent of your floor space is heated?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

73. What percent of your floor space is cooled?

[RECORD RESPONSE: _____]

- 98. Don't know
- 99. Refused

74. What are your facility's operating hours on weekdays (Monday-Friday)? [RECORD HOURS AND MINUTES USING 24 HOUR CLOCK (EX: ENTER 0530, 1750 FOR OPEN AT 5:30 AM AND CLOSE AT 5:30 PM), ENTER 2400 FOR 24 HOURS AND 0 FOR CLOSED]

74a. Monday

[RECORD RESPONSE: _____]

100. Don't know

101. Refused

74b. Tuesday

[RECORD RESPONSE: _____]

98. Don't know

99. Refused

74c. Wednesday

[RECORD RESPONSE: _____]

98. Don't know

99. Refused

74d. Thursday

[RECORD RESPONSE: _____]

98. Don't know

99. Refused

74e. Friday

[RECORD RESPONSE: _____]

98. Don't know

99. Refused

75. What are your facility's operating hours on Saturday? [RECORD HOURS AND MINUTES USING 24 HOUR CLOCK (EX: ENTER 0530, 1750 FOR OPEN AT 5:30 AM AND CLOSE AT 5:30 PM), ENTER 2400 FOR 24 HOURS AND 0 FOR CLOSED]

[RECORD RESPONSE: _____]

98. Don't know

99. Refused

76. What are your facility's operating hours on Sunday? [RECORD HOURS AND MINUTES USING 24 HOUR CLOCK (EX: ENTER 0530, 1750 FOR OPEN AT 5:30 AM AND CLOSE AT 5:30 PM), ENTER 2400 FOR 24 HOURS AND 0 FOR CLOSED]

[RECORD RESPONSE: _____]

100. Don't know

101. Refused

Those are all the questions I have for you today. I would like to thank you for your time and the valuable information you provided.

Appendix B. Summary of Findings from Primary Data Collection

Residential Phone Survey Memo

MEMORANDUM

To: Mike Hornung, Jason Knoy, Louisville Gas and Electric
From: The Cadmus Group, Inc.
Subject: Residential Phone Surveys
Date: 03/21/2013

This memo summarizes findings from 412 residential phone surveys completed by Cadmus and EHI, Inc. to inform the energy-efficiency potential study and program planning work.¹ This memo highlights the following research topics

- Assess awareness, perceptions, actions related to energy-efficiency
- Assess efficiency program awareness and perceptions
- Assess key factors affecting program participation
- Characterize customers' willingness to adopt energy-efficiency measures

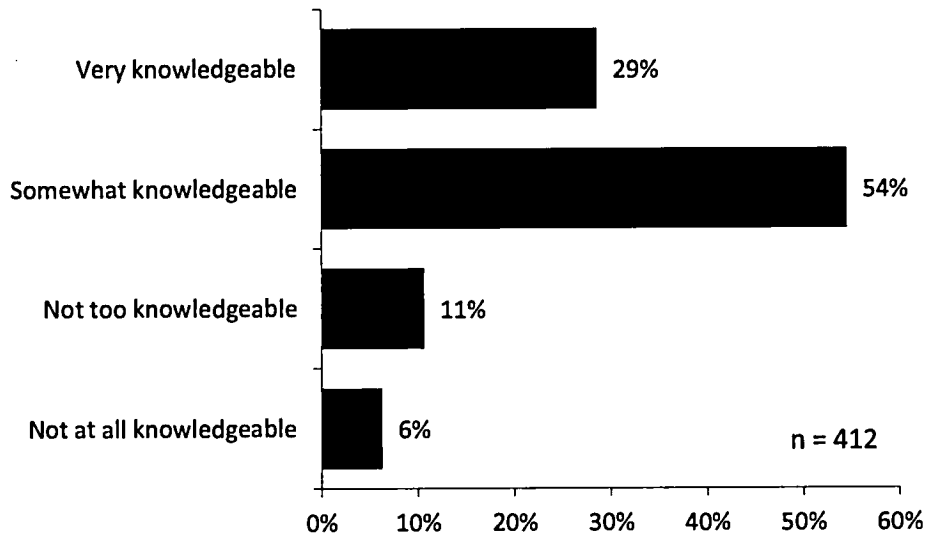
The memo summarizes results at the company level (LG&E and KU)—additional utility-level detail can be provided. Generally, Cadmus did not find statistically significant differences between LG&E and KU customers.

Awareness and Knowledge

Cadmus asked customers how knowledgeable they are in ways to save energy (Figure 1).

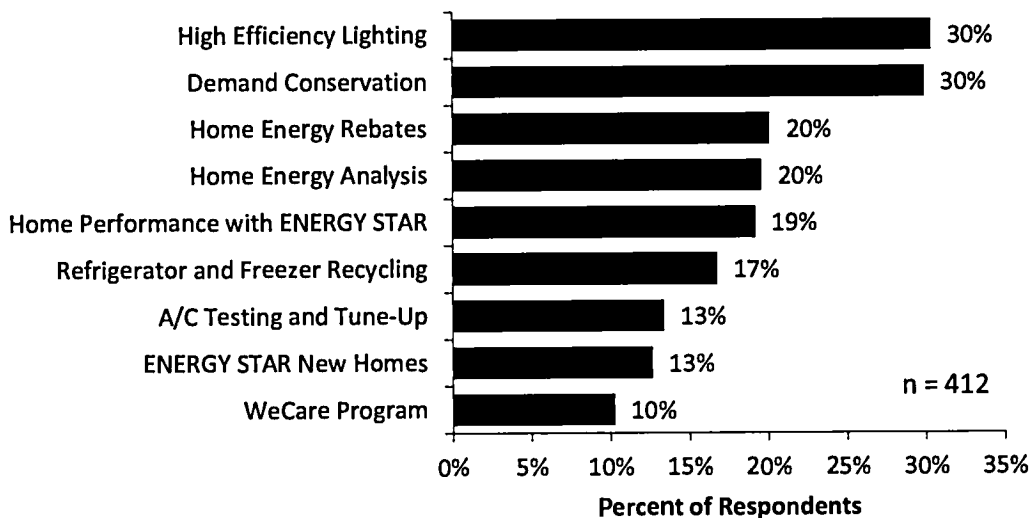
¹ Sample sizes for individual survey questions vary based due to non-response.

Figure 1. Knowledge of Ways to Save Energy



Eighty-three percent of customers reported they are either “very knowledgeable” or “somewhat knowledgeable”. When asked if they are aware of government or utility sponsored to give rebates, tax credits, or discounts on energy-efficiency measures, 46% of customers said yes. Awareness of energy-efficiency programs was not different for LG&E and KU customers. Figure 2 shows the programs that customers said they are familiar with.

Figure 2. Awareness of LG&E and KU Energy-Efficiency Programs



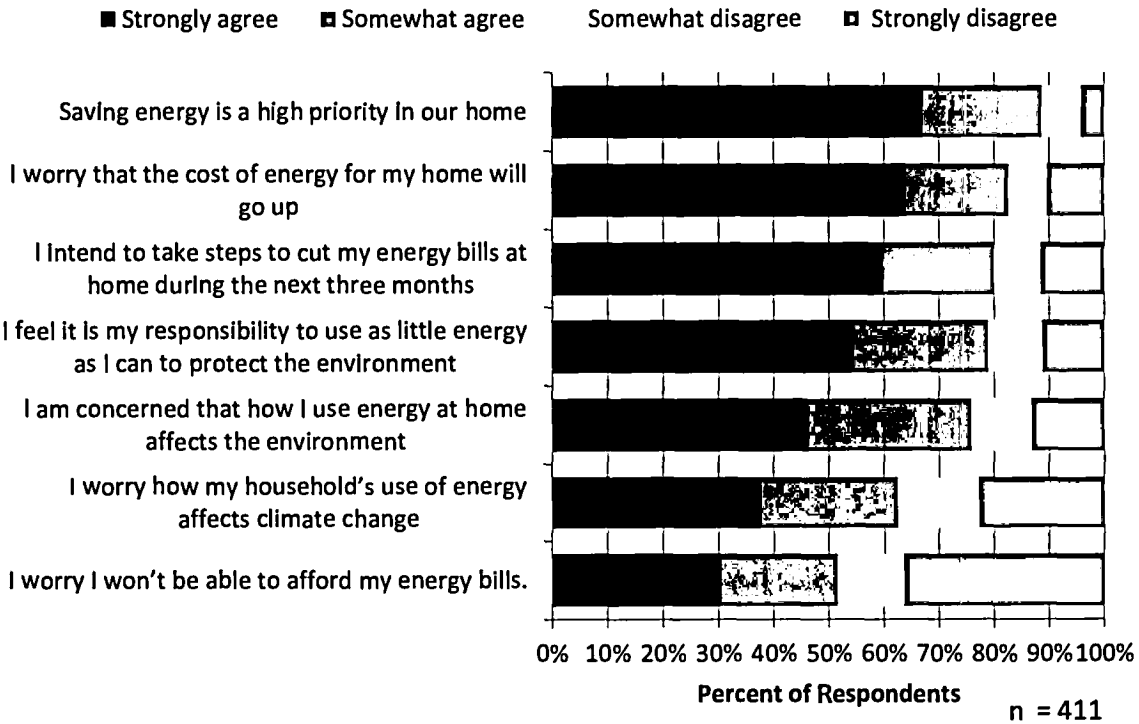
Customers are most familiar with LG&E and KU’s high-efficiency lighting and demand conservation programs— 30% of customers reported familiarity with either of these programs. Customers are least

familiar with ENERGY STAR New Homes and WeCare Programs (13%, and 10%, respectively). This is not surprising, as each of these programs reach a specific subset of LG&E and KU customers.

Attitudes towards energy-efficiency

Cadmus asked customers about their concerns and motivations to save energy to assess reasons why a customer might participate in an energy-efficiency program. Figure 3 shows customers' concerns, with respect to energy.

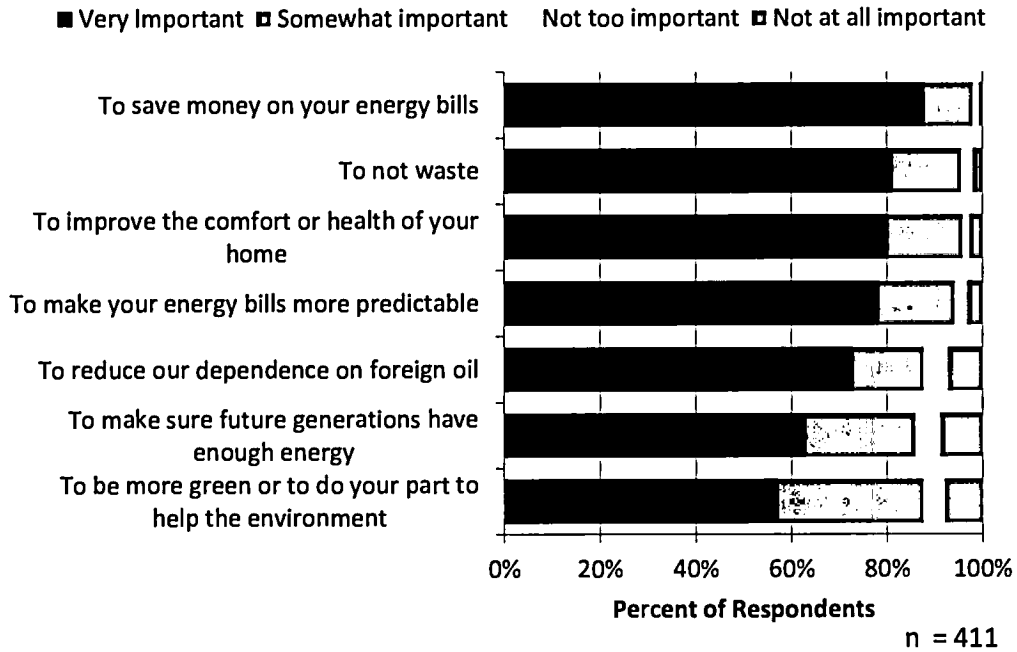
Figure 3. Concern and Personal Responsibility



Customers mentioned saving energy and the possibility of increased energy costs as concerns. Eighty-nine percent of customers agreed that saving energy is a high priority in their home. Eighty-three percent of customers are worried that the cost of energy for their home will go up. Customers are less concerned about climate change and their ability to pay energy bills. Sixty-three percent of customers said they worry about how their energy use affects climate change and 52% of customers are concerned that they won't be able to afford their energy bills.

When asked about what motivates them to save energy, respondents mentioned money, waste and comfort (Figure 4).

Figure 4. Motivations to Save Energy

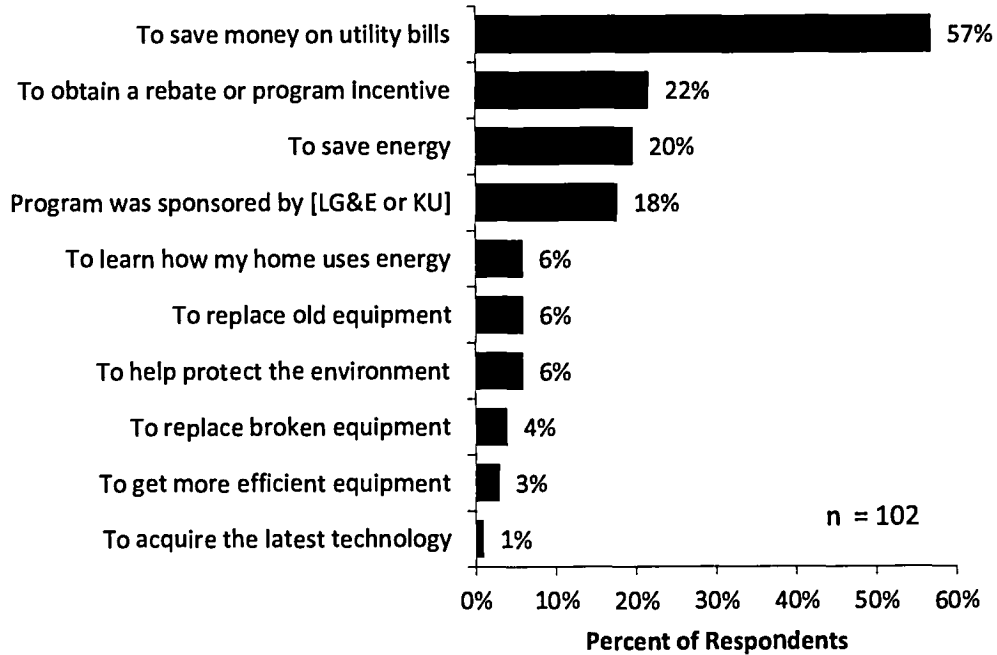


Ninety-eight percent of customers said energy bill savings motivates them to conserve energy. Customers also cited reducing waste (96%) and improved comfort (96%) as reasons to save energy. Concern about future generations and the environment are less important--86% and 87% reported these two factors are important, respectively.

Energy-Efficiency Program Awareness and Experience

Twenty-four percent said they had received a rebate, tax credit, or discount on services from a utility or government sponsored energy-efficiency program. Cadmus asked customers why they decided to participate in the program (Figure 5).

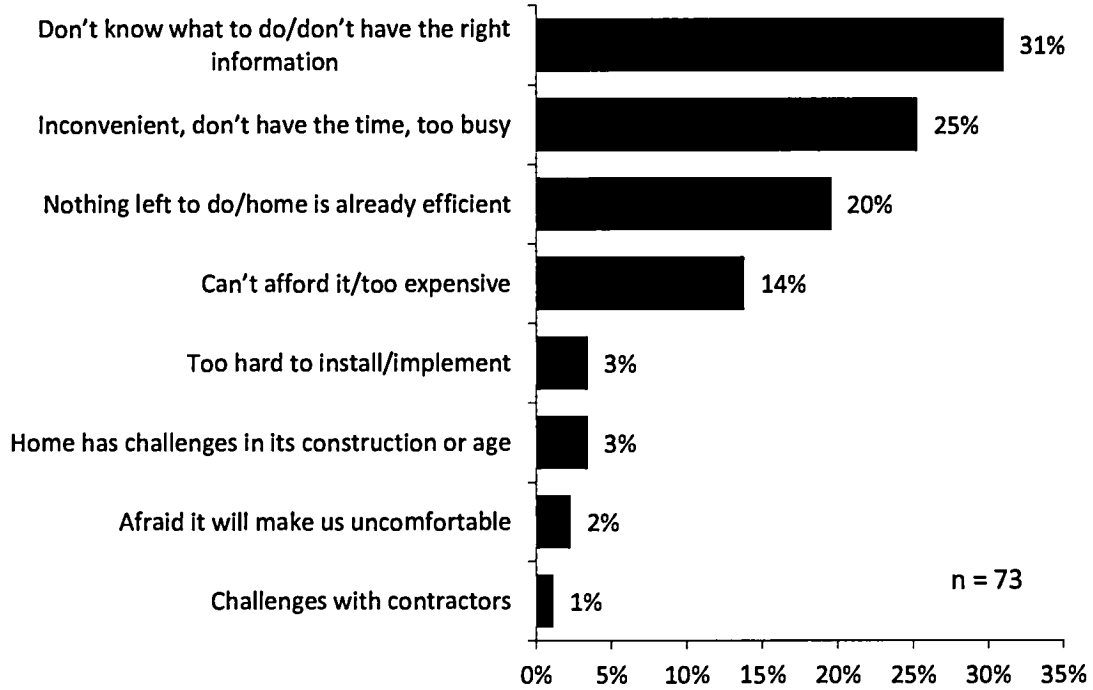
Figure 5. Reasons for Participating in Utility or Government Sponsored Energy-Efficiency Programs



Energy-efficiency program participants often mentioned bill savings as the reason why they participated in the program (57%). Twenty-two percent of participants said the utility incentive motivated them to participate in the program, and 20% mentioned the importance of saving energy.

Non-participants mentioned a lack of information and inconvenience as barriers to participating in energy-efficiency programs (Figure 6).

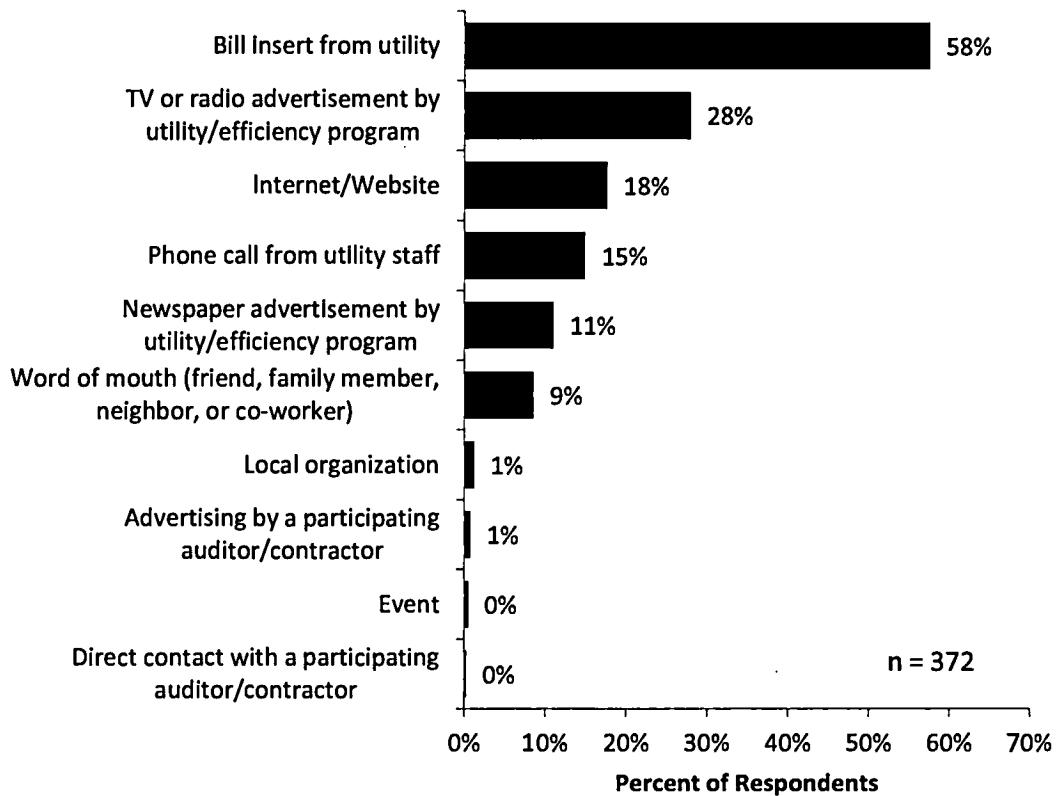
Figure 6. Reasons for Not Participating in Energy-Efficiency Programs



Thirty-one percent of non-participating respondents said they don't know what to do or don't have the right information. Twenty-five percent said they don't have time or are too busy. Few participants mentioned difficulty to install (3%) or problems with contractors (1%).

Cadmus asked customers about the best ways to inform them of energy-efficiency programs (Figure 7).

Figure 7. Best Way to Inform Customers of Energy-Efficiency Programs

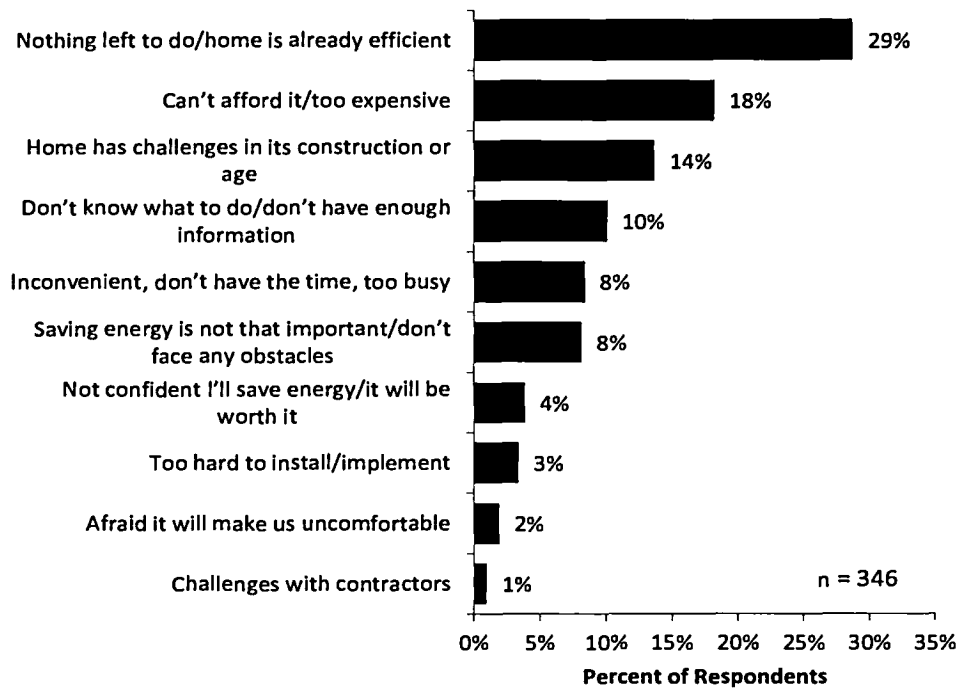


Customers said bill inserts and TV/radio advertisements are the best means of advertising energy-efficiency programs (58% and 28%, respectively). Few customers mentioned advertising or direct contact through contractors as good ways to reach them (1%, and <1%, respectively).

Barriers to Energy-Efficiency and Energy Behaviors

Cadmus asked customers about the obstacles they face in trying to save energy in their home (Figure 8).

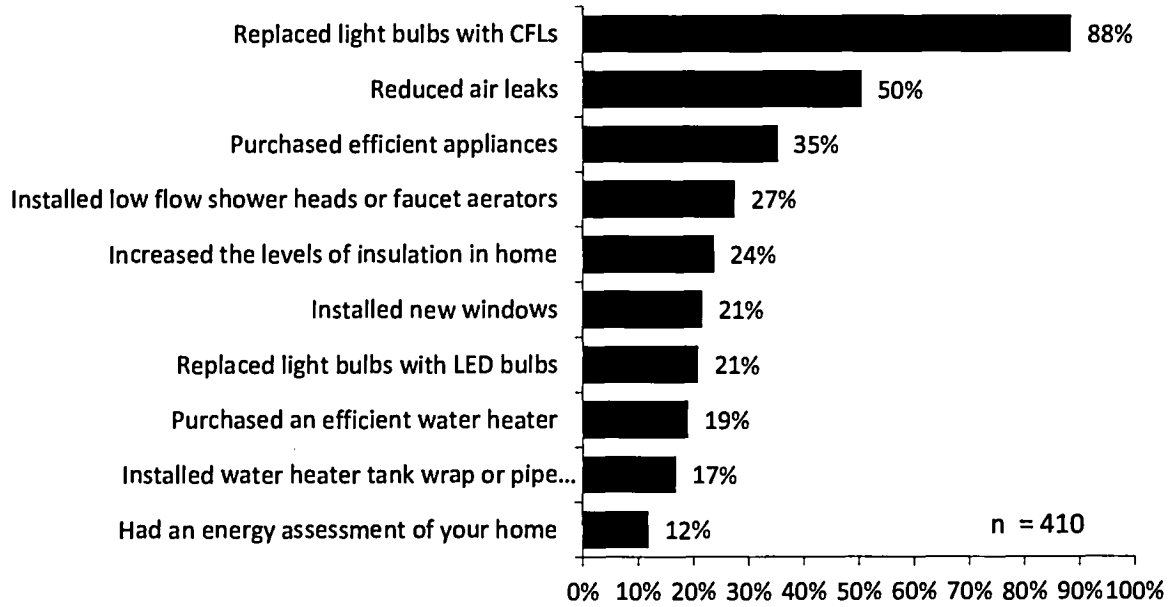
Figure 8. Obstacles to Saving Energy



Customers mentioned a limited number of options and cost as major barriers to saving energy in their home. Twenty-nine percent said they have nothing left to do in their home (or their home is already efficient) and 18 percent said they can't afford energy-efficiency measures.

When asked what they have done to save energy in the past year, many customers mentioned installing Compact Fluorescent Lamps (CFLs) and infiltration reducing measures (caulking, weatherstripping, etc.).

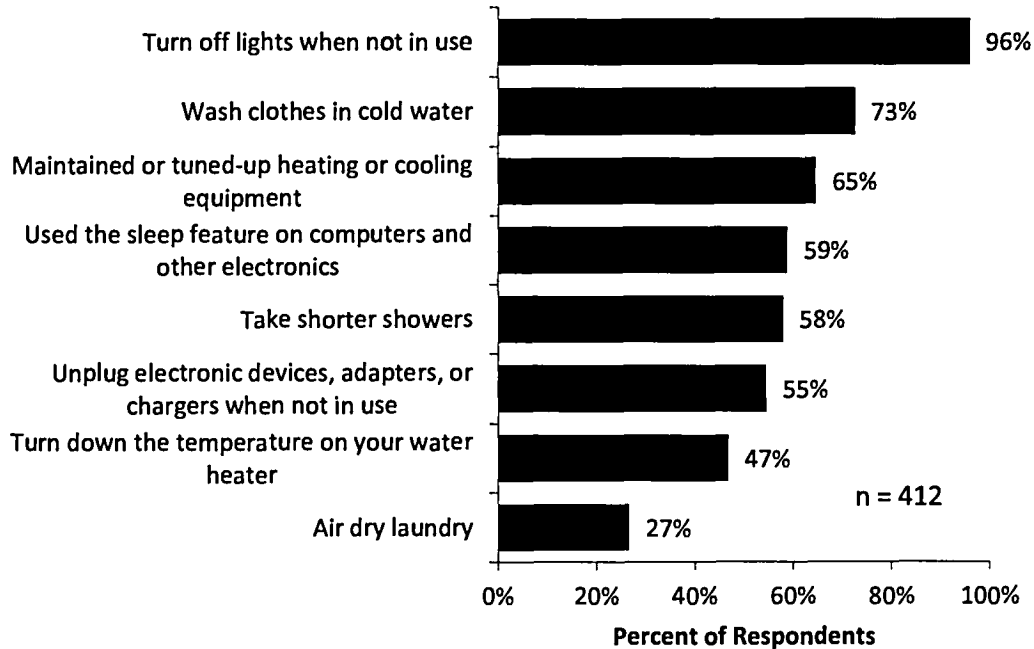
Figure 9. Energy-Saving Measures Installed in Past Year



As shown in Figure 9, eighty-eight percent of customers replaced incandescent light bulbs with CFLs in the past year. Fifty percent of customers installed an air sealing measure (caulk, weatherstripping, door sweeps). Customers were less likely to mention higher cost measures such as windows, LED light bulbs, and efficient water heaters (21%, 21%, and 19%, respectively).

Common behaviors for saving energy include turning-off lights when not in the room, washing laundry in cold water and maintaining tuned-up heating and cooling equipment (Figure 10).

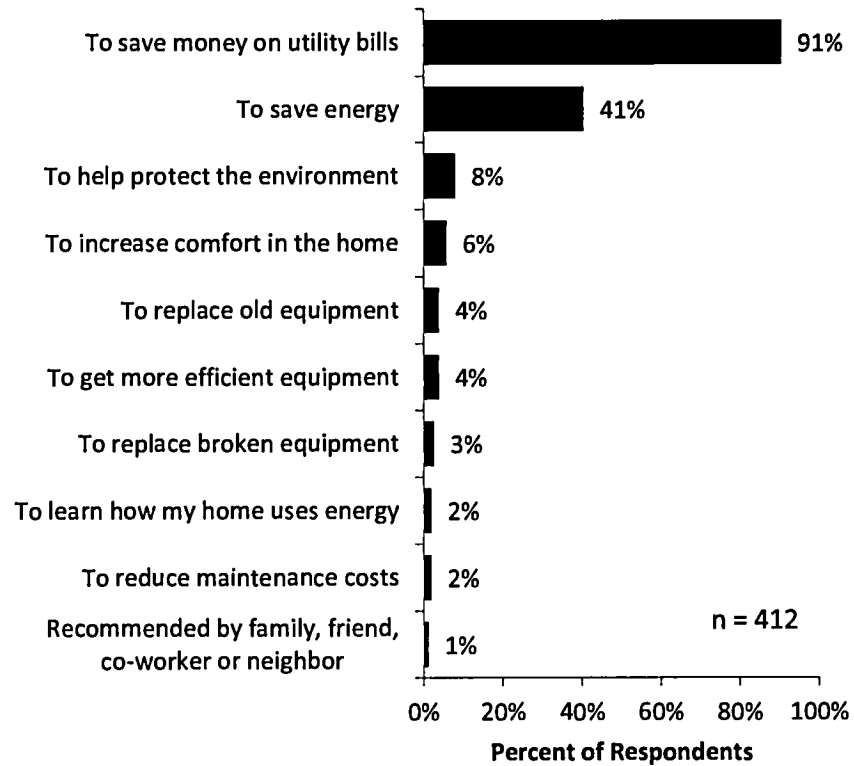
Figure 10. Common Energy-Saving Behaviors



Ninety-six percent of customers said they turn-off lights when not in use. Seventy-three percent said they wash clothes in cold water to save water heater energy consumption. Sixty-five percent of customers said they maintain tuned-up heating and cooling equipment. Customers reported they are less likely to reduce the temperature on their water heater (47%) or air dry laundry (27%).

The reasons customers adopted these energy-saving behaviors are similar to the reasons why customers install energy-efficiency measures (Figure 11).

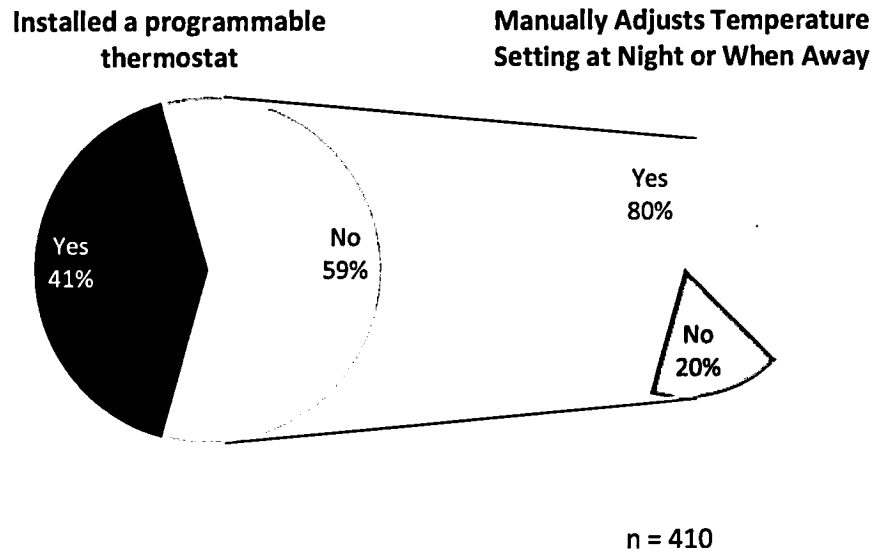
Figure 11. Reason for Installing Measures or Adopting Energy-Saving Behaviors



Ninety-one percent of customers said they adopted an energy-saving behavior to save money on their utility bills. Forty-one percent said they adopted these behaviors to “save energy” in general.

Cadmus also asked customers about how they use their thermostat (Figure 12).

Figure 12. Thermostat Type and Behavior

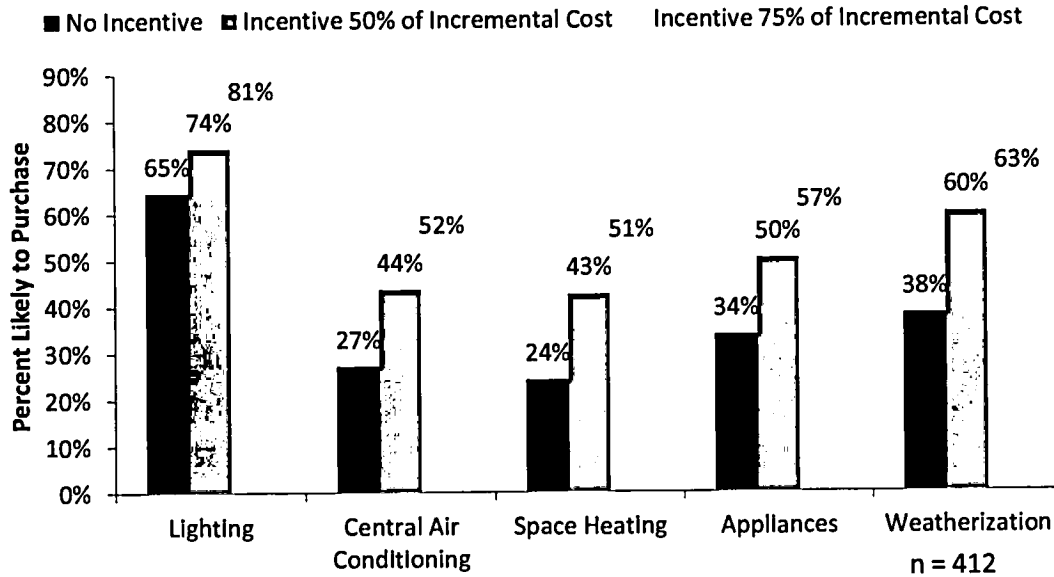


Fifty-nine percent of customers said they do not have a programmable thermostat. Of those customers, 80% said

Willingness-to-Adopt Energy-Efficiency Measures

Cadmus asked respondents about their willingness to purchase an energy-efficiency measure, given a certain incentive level—either no incentive, an incentive that covers 50% of the cost to upgrade, or an incentive that covers 75% of the cost to upgrade (Figure 13).

Figure 13. Willingness-to-Adopt Energy-Efficiency Measures



Eighty-one percent of customers said they would purchase efficient lighting if an incentive covered 75% of the cost to upgrade. A lower percentage of customers said they would purchase more expensive equipment such as efficient central air conditioning, space heating, appliances, and weatherization, if offered an incentive. Fifty-two percent of said they would purchase an efficient central air conditioner if an incentive covered 75% of the incremental cost. Fifty-seven percent of customers said they would purchase efficient appliances if an incentive covered 57% of the incremental cost. Slightly more customers said they would upgrade weatherization if given an incentive (63% said they would if the incentive covered 75% of the cost to upgrade).

Commercial Phone Survey Results Memo**MEMORANDUM**

To: Mike Hornung, Jason Knoy, Louisville Gas and Electric
From: The Cadmus Group, Inc.
Subject: Commercial Phone Surveys
Date: March 28, 2013

This memo summarizes findings from 196 commercial phone surveys completed by Cadmus and EHI, Inc. Cadmus fielded the surveys to inform the energy-efficiency potential study and program planning work.² This memo highlights Cadmus' the following research areas:

- Assess awareness, perceptions, actions related to energy-efficiency
- Assess efficiency program awareness and perceptions
- Assess key factors affecting program participation
- Characterize customers' willingness to adopt energy-efficiency measures

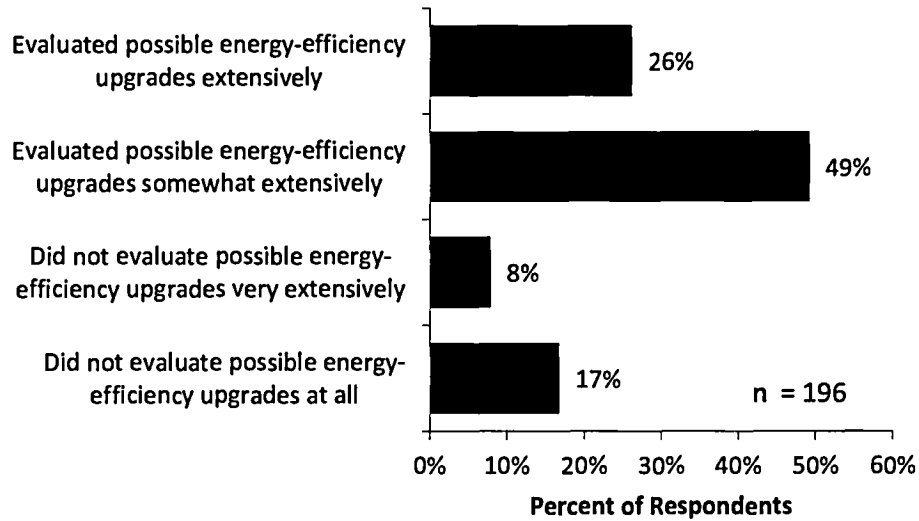
Results are presented at the company level (LG&E and KU) — additional utility-level detail can be provided. Generally, Cadmus did not find statistically significant differences between LG&E and KU customers.

General Attitudes and Experience

Cadmus asked commercial customers whether they have evaluated opportunities to save energy extensively (Figure 14).

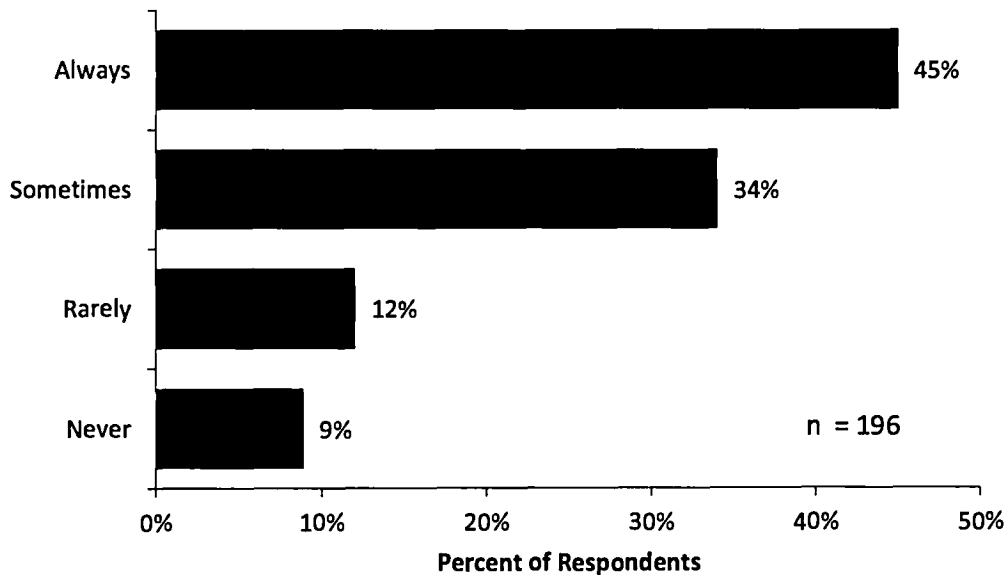
² Sample sizes for individual survey questions vary based due to non-response.

Figure 14. Extent to Which Organization has Evaluated Opportunities to Save Energy



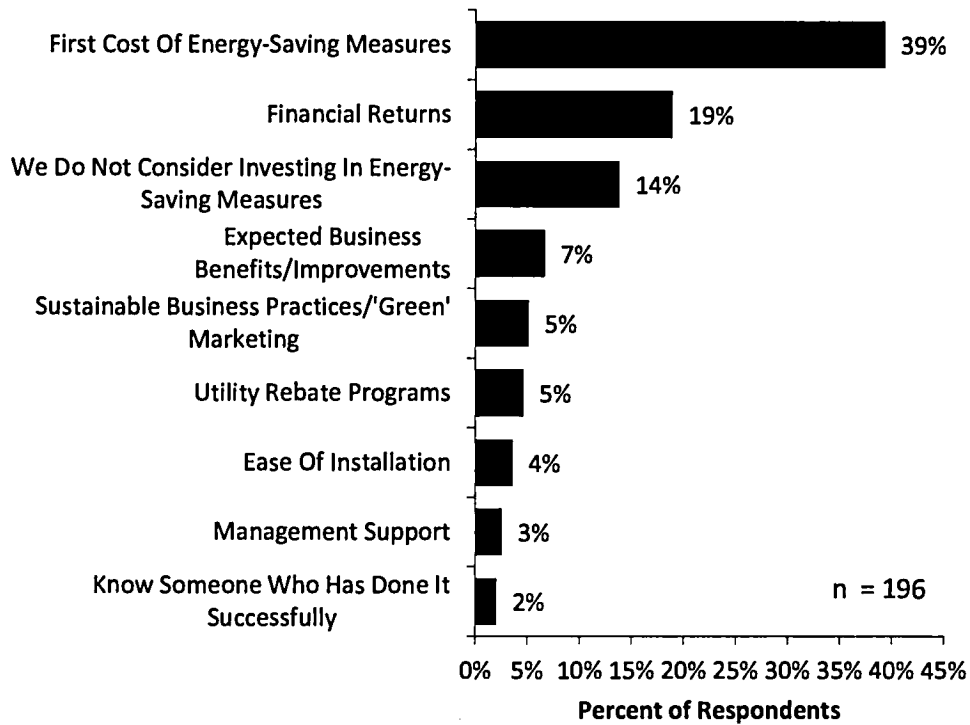
Seventy-five percent of respondents said they had either evaluated possible energy-efficiency upgrades “extensively” or “somewhat extensively.” Seventeen percent of customers said they have not evaluated energy-efficiency upgrades at all. A similar proportion of customers say they either “always” or “sometimes” consider energy consumption when purchasing new equipment (Figure 15).

Figure 15. Considers Energy Consumption When Buying New Equipment for Facility



Customers said they most-often consider the first-cost of the energy-saving measures and financial returns when deciding to invest in energy-efficiency (Figure 16).

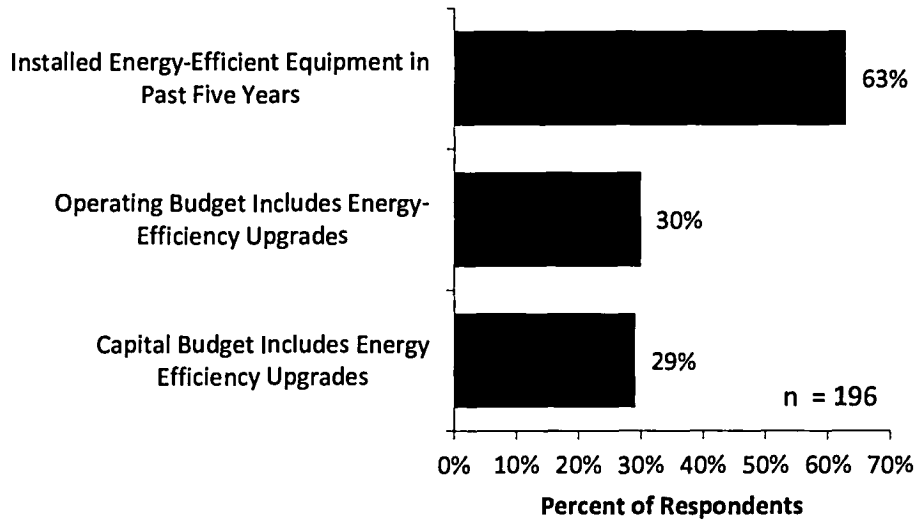
Figure 16. Considerations When Deciding to Invest in Energy-Efficiency



Thirty-nine percent of commercial customers identify the first-cost of a measure as a consideration when deciding to invest in energy-efficiency. Nineteen percent of customers mentioned “financial returns” as a consideration when deciding to invest.

Figure 17 shows the percent of customers who have made energy-efficient investments in the past five years and plan for investments in energy-efficiency.

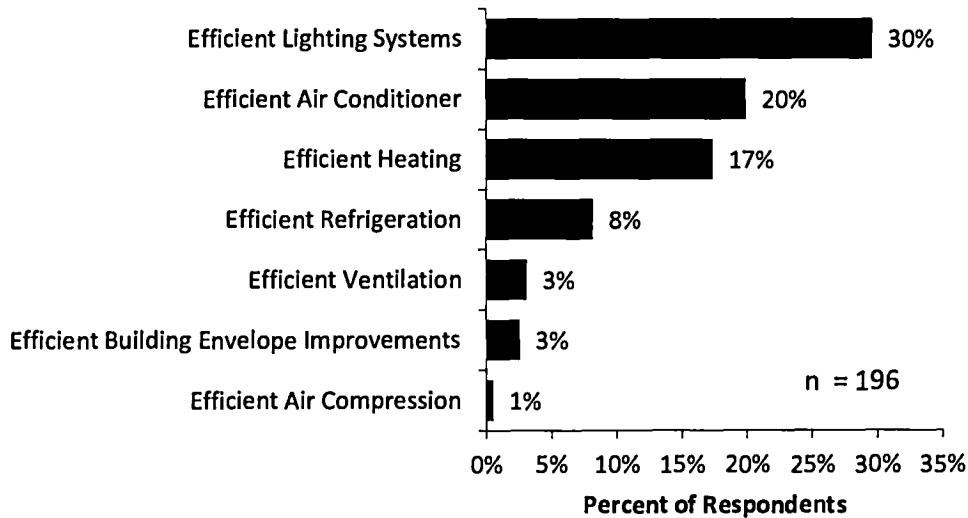
Figure 17. Historic and Budgeted Energy-Efficiency Investments



Sixty-three percent of customers have made investments in energy-efficiency in the past five years. A smaller percent of customers includes energy-efficiency upgrades in either their operating budget or capital budget (30% and 29%, respectively). This smaller percent likely reflects either 1) customer who invest in energy-efficiency don't always plan for it in their budgets or 2) customers who have invested in energy-efficiency do not plan to make future investments.

Figure 18 lists energy-efficiency measures installed by commercial customers.

Figure 18. Energy-Efficient Measures Installed in the Last Five Years

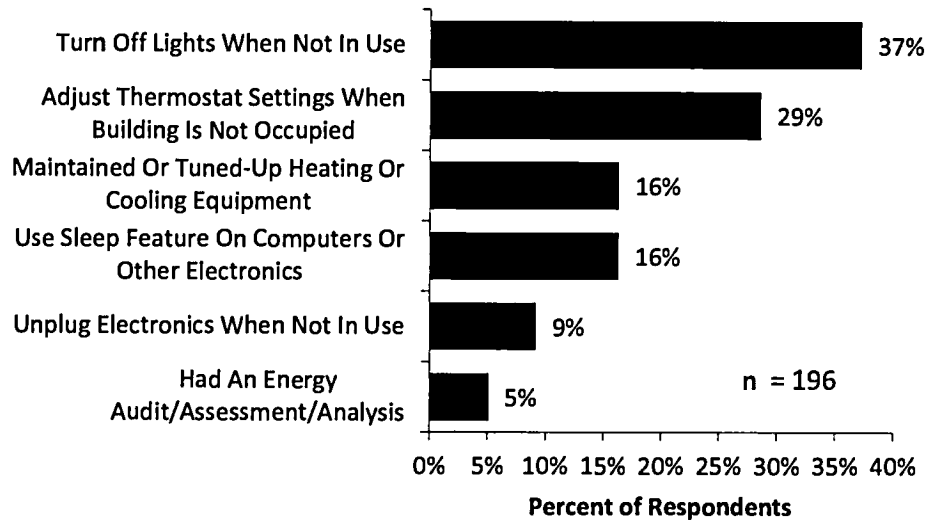


Respondents mentioned lighting and HVAC measures when asked what they installed in the last five years. Thirty percent of customers said they installed efficient lighting systems and 20% said they

installed efficient heating. Few customers said they made efficient building envelope improvements (3%).

Cadmus also asked about additional steps the respondent's organization has taken to save energy (Figure 19).

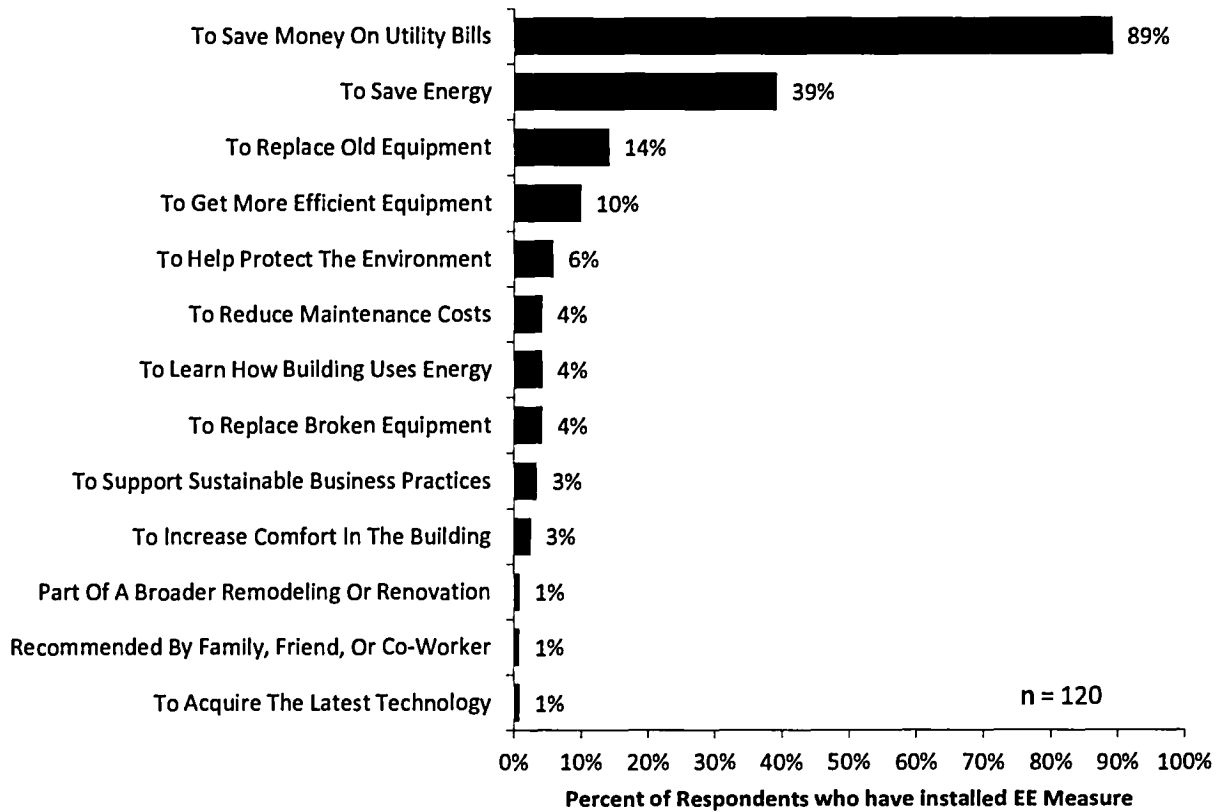
Figure 19. Additional Steps Taken to Save Energy



Similar to residential customers, commercial customers mentioned said other energy-saving actions include turning lights off when not in use (37%), adjusting the thermostat when their building is not occupied (29%) and maintaining tuned-up HVAC equipment (16%).

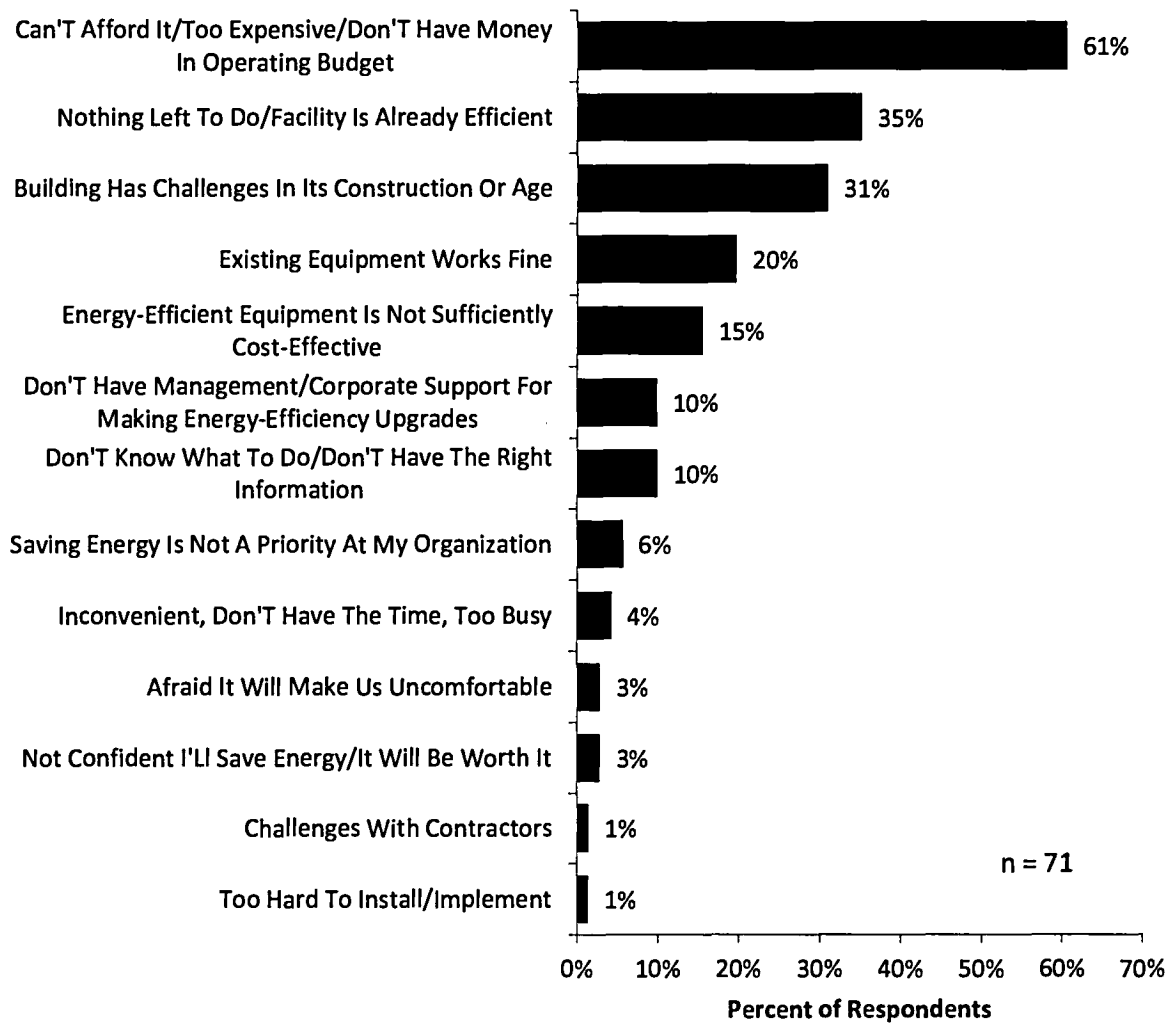
When asked why they made investments in energy-efficiency, respondents provided the reasons shown in Figure 20.

Figure 20. Reason for Investing in Energy-Efficient Upgrades



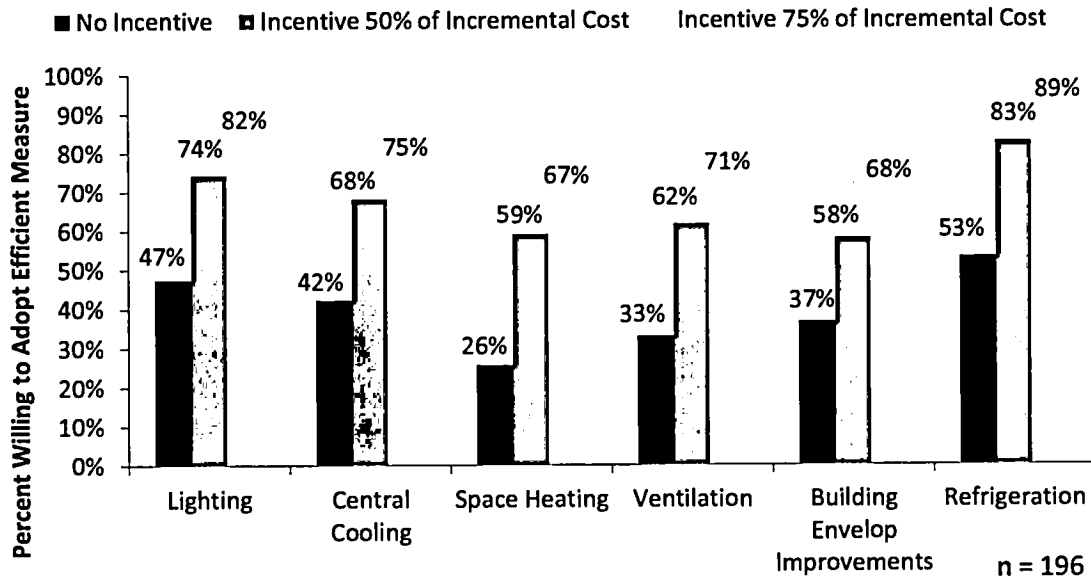
Saving money on utility bills and saving energy in general are the primary reasons why commercial customers install energy-efficiency measures (89% and 39%, respectively). Figure 21 lists reasons why customers chose not to install energy-efficiency measures.

Figure 21. Reasons for Not Pursuing Energy-Efficient Upgrades



Sixty-one percent of customers cited cost as a reason why they chose not to invest in energy-efficient upgrades. Thirty-five percent of customers said their building is already efficient and they have nothing left to do. Thirty-one percent of customers mentioned their building’s construction or age as a barrier to installing energy-efficiency measures. Commercial customers often mention cost as a reason for not making efficient upgrades. These customers, in turn, say monetary incentives will influence their willingness to adopt efficient measures. Cadmus asked customers about their willingness-to-purchase efficient upgrades based on three incentive scenarios (no incentive, 50% of the cost to upgrade, and 75% of the cost to upgrade). Figure 22 summarizes customers’ willingness to adopt energy-efficiency measures.

Figure 22. Willingness to adopt Energy-Efficiency Measures



For each end use category, customers indicated that higher incentives would increase the likelihood they would upgrade to efficient equipment. For high cost measures such as HVAC and shell improvements, a lower percentage of customers said they would invest in an efficient measure, absent any incentive (26% to 42%). For lower cost measures, such as lighting and refrigeration, the percent of customers who said they would install an efficient measure without an incentive is higher (47% and 53%, respectively).

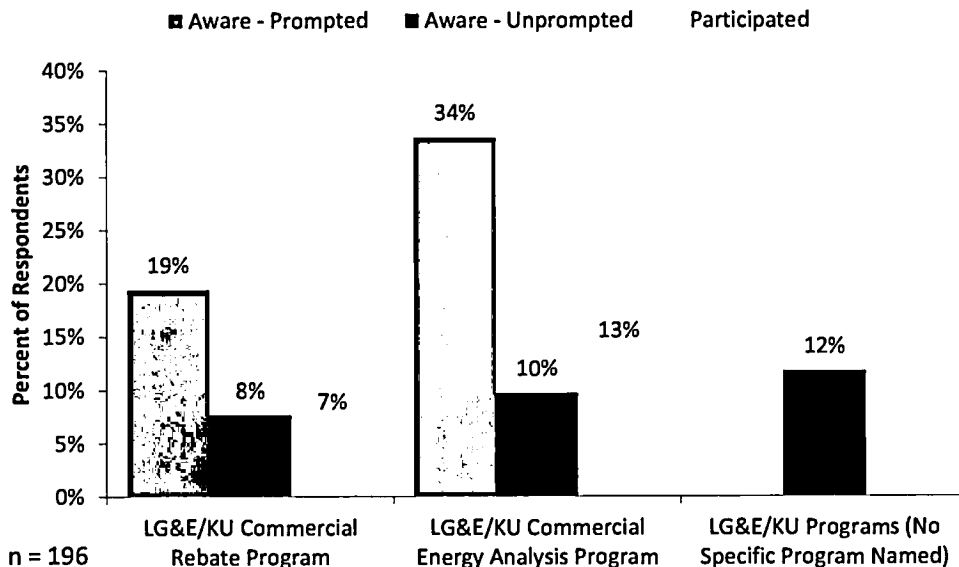
Program Awareness and Experience

To inform program planning, Cadmus asked commercial customers about their awareness of and experience with LG&E and KU energy-efficiency programs. These questions covered

- Awareness of energy-efficiency programs
- Previous participation in energy-efficiency programs.
- Sources for program information
- Factors that contribute to the decision to participate or not participate

Cadmus first asked the customer if they were aware of LG&E, KU, or government sponsored programs to save energy—43% of respondents reported familiarity with energy-efficiency programs. Figure 23 shows the proportion of customers who are familiar with specific LG&E or KU programs.

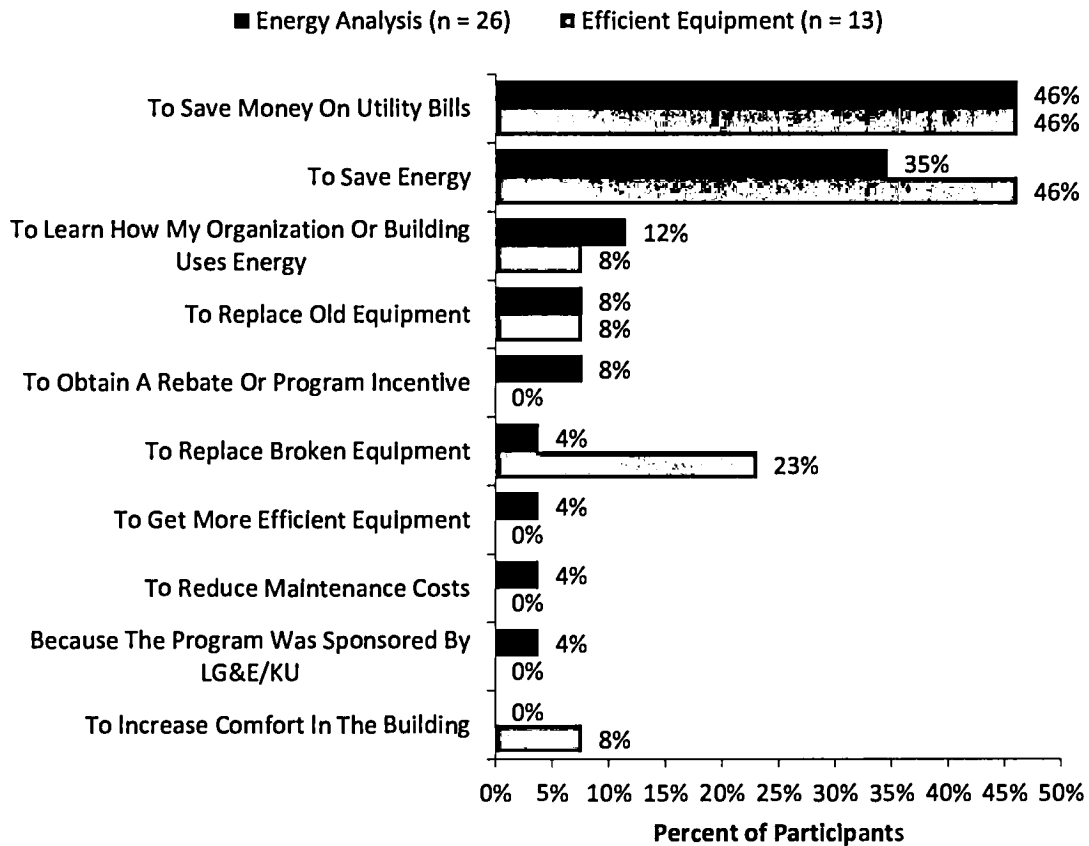
Figure 23. Awareness of Energy-Efficiency Programs



When unprompted, roughly 12% of customers reported familiarity with LG&E or KU energy-efficiency programs. After the given more information about the programs, more customers said they were familiar. Thirty-four percent of customers said they knew of LG&E or KU's Energy Analysis program and 19% of customers said they were familiar with LG&E or KU's commercial rebate program. Thirteen percent of respondents said their company had participated in the energy analysis program and 7% said they had participated in the commercial rebate program.

Cadmus asked these participants why they participated in these programs (Figure 24).

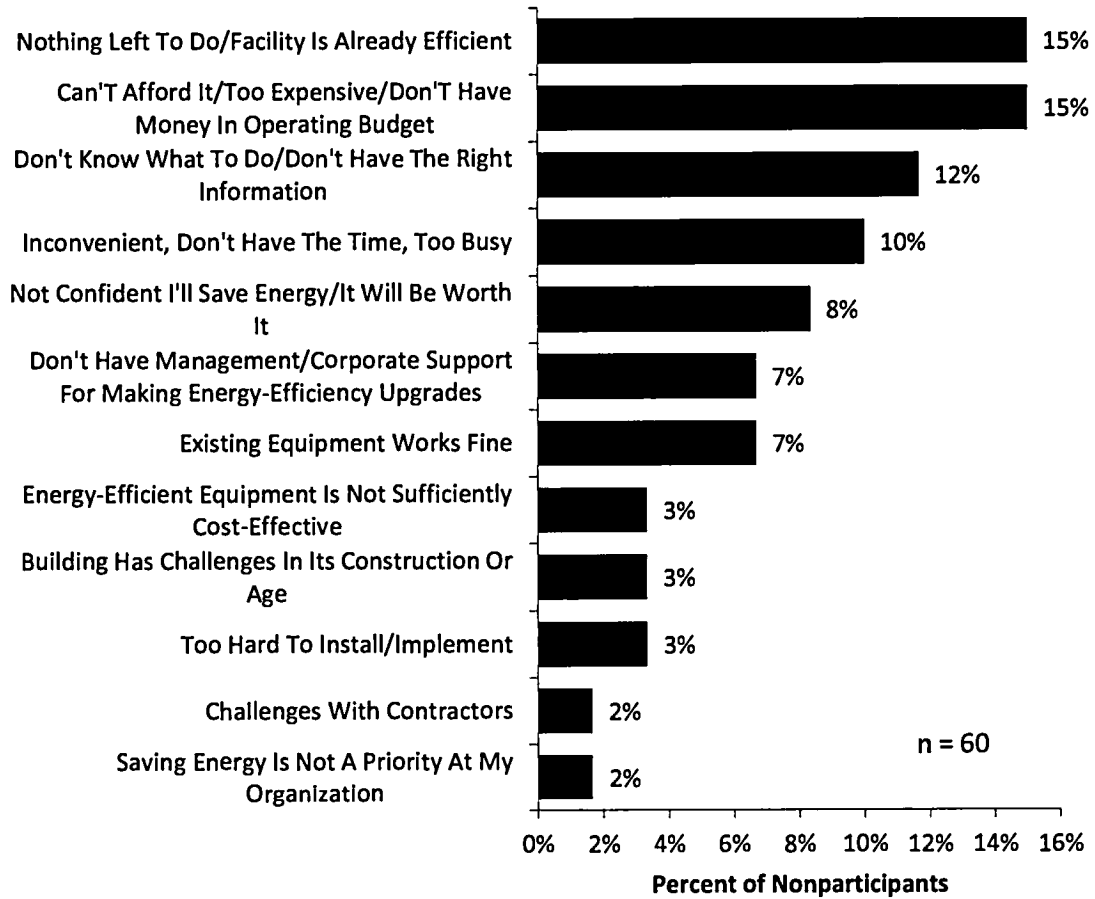
Figure 24. Reasons for Participating in Energy-Efficiency Program



For both programs, customers mentioned bill savings and energy savings as primary reasons for participating in the program. Unsurprisingly, efficient equipment participants said they used the program to replace broken equipment.

Cadmus asked the 30% of customers who are aware of programs but have not participated, why they have not participated (Figure 25).

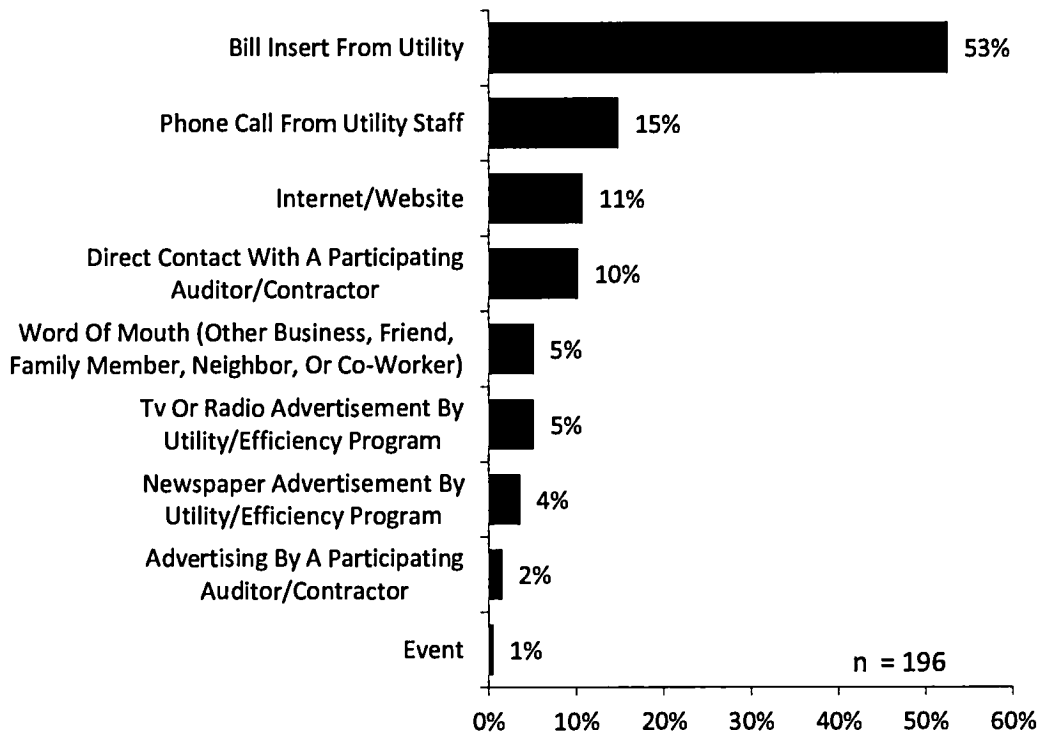
Figure 25. Reasons for Not Participating in Energy-Efficiency Programs



Non-participants mentioned limited remaining opportunities for energy-efficiency and cost as two reasons why they have not participated in utility sponsored programs (15% of customers for each response). Other reasons include insufficient information (12%), inconvenience (10%), and uncertainty about whether energy savings will be worth it (8%).

Figure 26 shows the different ways customers would like to be informed of energy-efficiency programs.

Figure 26. Best Way to Inform Customers of Energy-Efficiency Programs



Most customers said bills inserts are the best way to inform them of energy-efficiency programs (53%). These, however, are not always the most effective way of informing commercial customers of programs. Staff in charge of energy management decisions may not see utility bills, and therefore, may not see inserts about programs. LG&E informs commercial customers either through direct contact or through participating contractors or trade-allies. Fifteen percent of customers said a direct call from utility staff is the best way to inform them of programs, and 10% said direct contact with a participating contractor is the best way.

Figure C29. Residential Electric Baseline Forecast (LGE) 2014-2033

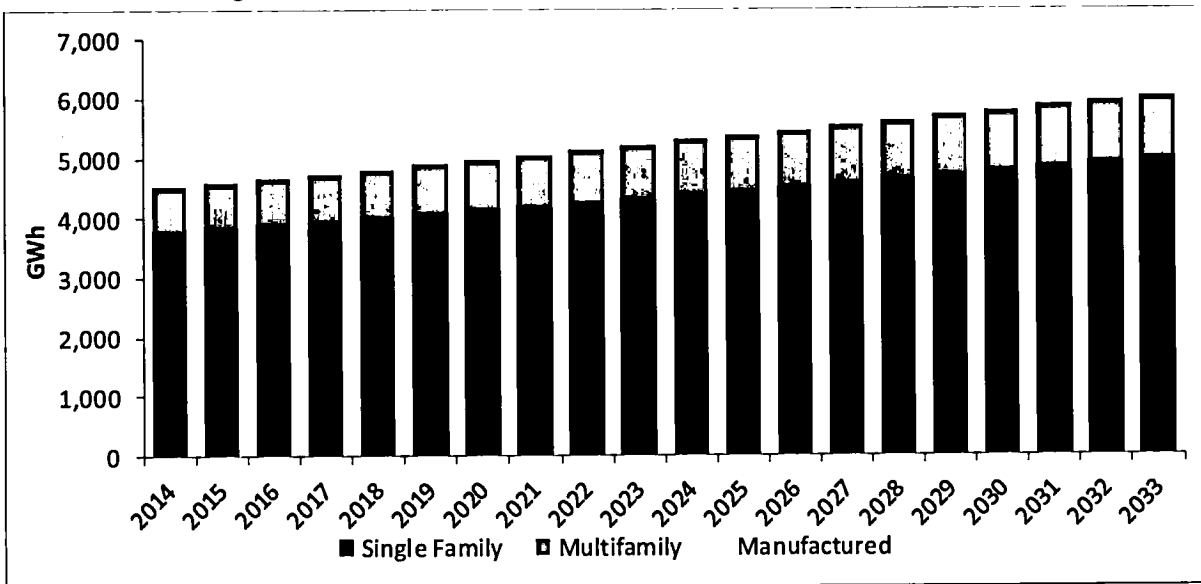


Figure C30. Residential Gas Baseline Forecast (LGE) 2014-2033

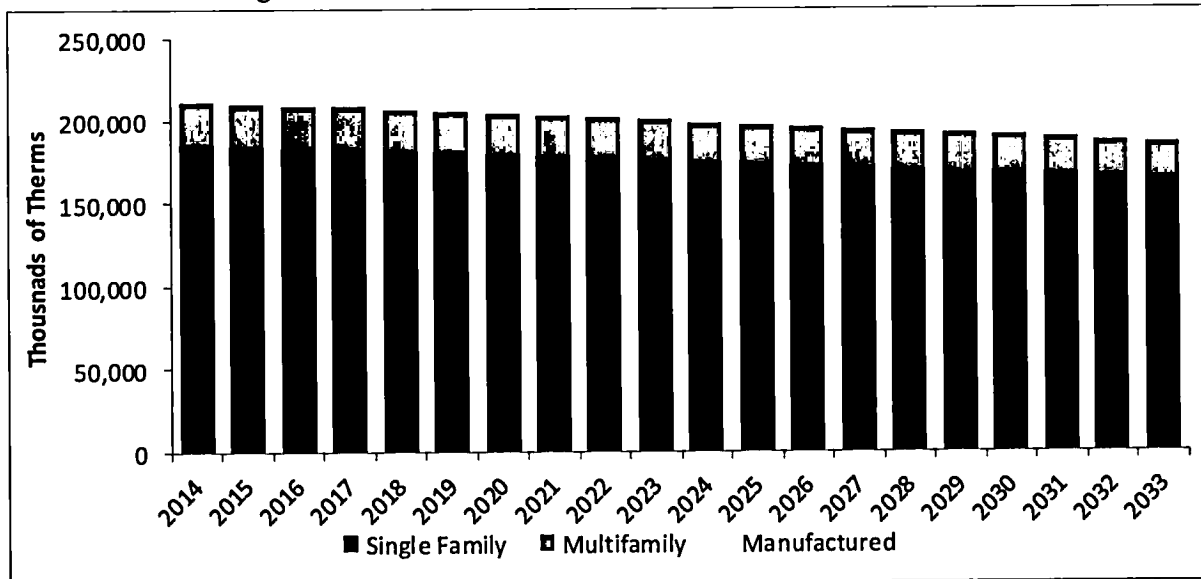


Table C3. Residential Electric (KU) Saturations, Fuel Shares, and UECs

Segment	End Use	Saturation	Fuel Share	Weighted	Weighted
				Average UEC (2013) Existing	Average UEC (2013) New
Manufactured	Computer	0.92	1.00	194	197
Manufactured	Cooking Oven	0.92	0.90	105	105
Manufactured	Cooking Range	0.92	0.90	53	53
Manufactured	Cool Central	0.63	1.00	1,781	1,046
Manufactured	Cool Room	0.34	1.00	314	314
Manufactured	Copier	0.14	1.00	146	151
Manufactured	Dehumidifier	0.09	1.00	851	851
Manufactured	Dryer	0.88	0.98	654	654
Manufactured	DVD	0.80	1.00	20	21
Manufactured	Freezer	0.39	1.00	340	340
Manufactured	Heat Central	0.55	0.84	9,353	6,619
Manufactured	Heat Pump	0.24	1.00	8,227	6,467
Manufactured	Heat Room	0.00	1.00	7,107	5,029
Manufactured	Home Audio System	0.92	1.00	102	105
Manufactured	Lighting Interior Specialty	3.59	1.00	34	34
Manufactured	Lighting Standard	20.34	1.00	30	30
Manufactured	Monitor	0.66	1.00	57	58
Manufactured	Multifunction Device	0.92	1.00	180	141
Manufactured	Plug Load Other	0.92	1.00	687	687
Manufactured	Printer	0.00	1.00	162	141
Manufactured	Refrigerator	1.01	1.00	501	499
Manufactured	Set Top Box	1.15	1.00	199	184
Manufactured	TV	1.95	1.00	186	166
Manufactured	Ventilation and Circulation	0.55	1.00	565	565
Manufactured	Water Heat GT 55 Gal	0.12	0.98	3,264	3,264
Manufactured	Water Heat LE 55 Gal	0.80	0.98	3,001	2,899
Multifamily	Computer	1.10	1.00	194	197
Multifamily	Cooking Oven	0.92	0.94	105	105
Multifamily	Cooking Range	0.92	0.94	53	53
Multifamily	Cool Central	0.77	1.00	1,212	829
Multifamily	Cool Room	0.18	1.00	314	314
Multifamily	Copier	0.05	1.00	146	151
Multifamily	Dehumidifier	0.14	1.00	851	851
Multifamily	Dryer	0.62	0.96	501	501

CADMUS

Multifamily	DVD	0.98	1.00	20	21
Multifamily	Freezer	0.18	1.00	340	340
Multifamily	Heat Central	0.60	0.57	6,292	4,380
Multifamily	Heat Pump	0.23	1.00	5,176	4,180
Multifamily	Heat Room	0.05	1.00	4,781	3,328
Multifamily	Home Audio System	1.00	1.00	102	105
Multifamily	Lighting Interior Specialty	3.59	1.00	34	34
Multifamily	Lighting Standard	20.34	1.00	31	31
Multifamily	Monitor	0.64	1.00	57	58
Multifamily	Multifunction Device	0.50	1.00	180	141
Multifamily	Plug Load Other	0.92	1.00	290	290
Multifamily	Printer	0.00	1.00	162	141
Multifamily	Refrigerator	0.95	1.00	508	506
Multifamily	Set Top Box	1.37	1.00	199	184
Multifamily	TV	1.57	1.00	186	166
Multifamily	Ventilation and Circulation	0.60	1.00	569	569
Multifamily	Water Heat GT 55 Gal	0.18	0.66	2,816	2,816
Multifamily	Water Heat LE 55 Gal	0.74	0.66	2,563	2,477
Single Family	Computer	1.44	1.00	194	197
Single Family	Cooking Oven	0.92	0.86	105	105
Single Family	Cooking Range	0.92	0.86	53	53
Single Family	Cool Central	0.73	1.00	2,268	1,354
Single Family	Cool Room	0.26	1.00	314	314
Single Family	Copier	0.11	1.00	146	151
Single Family	Dehumidifier	0.21	1.00	851	851
Single Family	Dryer	0.90	0.95	732	732
Single Family	DVD	1.26	1.00	20	21
Single Family	Freezer	0.48	1.00	340	340
Single Family	Heat Central	0.53	0.30	10,286	8,888
Single Family	Heat Pump	0.28	1.00	9,586	8,314
Single Family	Heat Room	0.02	1.00	7,816	6,753
Single Family	Home Audio System	1.02	1.00	102	105
Single Family	Lighting Interior Specialty	7.04	1.00	34	34
Single Family	Lighting Standard	39.89	1.00	30	30
Single Family	Monitor	0.94	1.00	57	58
Single Family	Multifunction Device	0.85	1.00	180	141
Single Family	Plug Load Other	0.92	1.00	731	731
Single Family	Pool Pump	0.07	1.00	1,340	1,340
Single Family	Printer	0.00	1.00	162	141

Single Family	Refrigerator	1.22	1.00	501	499
Single Family	Set Top Box	2.01	1.00	199	184
Single Family	TV	2.52	1.00	186	166
Single Family	Ventilation and Circulation	0.53	1.00	1,072	1,072
Single Family	Water Heat GT 55 Gal	0.34	0.66	3,564	3,564
Single Family	Water Heat LE 55 Gal	0.58	0.66	3,273	3,162

Table C4. Commercial Electricity (KU) Saturations, Fuel Shares and UECs

Segment	End Use	Saturation	Fuel Share	Weighted	Weighted
				Average EUI (2013) Existing	Average EUI (2013) New
Grocery	Computers	1.00	1.00	0.09	0.09
Grocery	Cooking	0.99	0.73	0.55	0.55
Grocery	Cooling Dx Evap	0.42	1.00	1.80	1.80
Grocery	Fax	1.00	1.00	0.00	0.00
Grocery	Flat Screen Monitors	1.00	1.00	0.02	0.02
Grocery	Freezers	1.00	1.00	0.00	0.00
Grocery	Heat Pump	0.35	1.00	2.56	2.56
Grocery	Lighting Exterior	1.00	1.00	1.05	1.05
Grocery	Lighting Interior Fluorescent	1.00	1.00	7.48	0.00
Grocery	Lighting Interior Hid	1.00	1.00	1.24	0.00
Grocery	Lighting Interior Other	1.00	1.00	0.16	8.41
Grocery	Lighting Interior Screw Base	1.00	1.00	0.93	0.00
Grocery	Other Plug Load	1.00	1.00	0.55	0.39
Grocery	Photo Copiers	1.00	1.00	0.01	0.01
Grocery	Printers	1.00	1.00	0.03	0.02
Grocery	Refrigeration	1.00	1.00	26.86	21.44
Grocery	Refrigerators	1.00	1.00	0.02	0.02
Grocery	Room Cool	0.14	1.00	0.56	0.56
Grocery	Room Heat	0.00	1.00	1.76	1.76
Grocery	Servers	1.00	1.00	0.03	0.03
Grocery	Space Heat	0.67	0.54	2.54	2.54
Grocery	Vending Machines	1.00	1.00	0.21	0.21
Grocery	Ventilation And Circulation	0.65	1.00	1.42	1.42
Grocery	Water Heat Gt 55 Gal	0.40	0.58	0.10	0.10
Grocery	Water Heat Le 55 Gal	0.59	0.58	0.21	0.20
Health	Computers	1.00	1.00	0.22	0.22

Health	Cooking	0.99	0.36	0.07	0.07
Health	Cooling Chillers	0.04	1.00	2.14	2.14
Health	Cooling Dx Evap	0.39	1.00	3.56	3.56
Health	Fax	1.00	1.00	0.01	0.01
Health	Flat Screen Monitors	1.00	1.00	0.05	0.05
Health	Freezers	1.00	1.00	0.00	0.00
Health	Heat Pump	0.12	1.00	3.85	3.85
Health	Lighting Exterior	1.00	1.00	0.58	0.58
Health	Lighting Interior Fluorescent	1.00	1.00	4.78	0.00
Health	Lighting Interior Hid	1.00	1.00	0.13	0.00
Health	Lighting Interior Other	1.00	1.00	0.27	4.72
Health	Lighting Interior Screw Base	1.00	1.00	1.70	0.00
Health	Other Plug Load	1.00	1.00	0.40	0.23
Health	Photo Copiers	1.00	1.00	0.01	0.01
Health	Printers	1.00	1.00	0.04	0.03
Health	Refrigeration	1.00	1.00	0.44	0.33
Health	Refrigerators	1.00	1.00	0.04	0.04
Health	Room Cool	0.00	1.00	0.07	0.07
Health	Room Heat	0.00	1.00	0.20	0.20
Health	Servers	1.00	1.00	0.02	0.02
Health	Space Heat	0.90	0.31	0.40	0.40
Health	Vending Machines	1.00	1.00	0.11	0.11
Health	Ventilation And Circulation	0.88	1.00	4.39	4.39
Health	Water Heat Gt 55 Gal	0.40	0.58	0.16	0.16
Health	Water Heat Le 55 Gal	0.59	0.58	0.33	0.32
Large Office	Computers	1.00	1.00	0.53	0.54
Large Office	Cooling Chillers	0.00	1.00	2.30	2.30
Large Office	Cooling Dx Evap	0.41	1.00	4.84	4.84
Large Office	Fax	1.00	1.00	0.01	0.01
Large Office	Flat Screen Monitors	1.00	1.00	0.11	0.11
Large Office	Freezers	1.00	1.00	0.00	0.00
Large Office	Heat Pump	0.35	1.00	5.07	5.07
Large Office	Lighting Exterior	1.00	1.00	0.51	0.51
Large Office	Lighting Interior Fluorescent	1.00	1.00	3.13	0.00
Large Office	Lighting Interior Hid	1.00	1.00	0.14	0.00
Large Office	Lighting Interior Other	1.00	1.00	0.04	3.01
Large Office	Lighting Interior Screw Base	1.00	1.00	0.44	0.00
Large Office	Other Plug Load	1.00	1.00	1.47	0.98
Large Office	Photo Copiers	1.00	1.00	0.01	0.01

Large Office	Printers	1.00	1.00	0.10	0.09
Large Office	Refrigerators	1.00	1.00	0.03	0.03
Large Office	Room Cool	0.10	1.00	0.03	0.03
Large Office	Room Heat	0.03	1.00	0.51	0.51
Large Office	Servers	1.00	1.00	0.05	0.05
Large Office	Space Heat	0.64	0.47	0.75	0.75
Large Office	Vending Machines	1.00	1.00	0.09	0.09
Large Office	Ventilation And Circulation	0.62	1.00	2.38	2.38
Large Office	Water Heat Gt 55 Gal	0.35	0.52	0.11	0.11
Large Office	Water Heat Le 55 Gal	0.64	0.52	0.23	0.22
Large Retail	Computers	1.00	1.00	0.06	0.06
Large Retail	Cooking	0.99	0.82	0.06	0.06
Large Retail	Cooling Dx Evap	0.61	1.00	5.41	5.41
Large Retail	Fax	1.00	1.00	0.00	0.00
Large Retail	Flat Screen Monitors	1.00	1.00	0.01	0.01
Large Retail	Freezers	1.00	1.00	0.00	0.00
Large Retail	Heat Pump	0.10	1.00	5.58	5.58
Large Retail	Lighting Exterior	1.00	1.00	1.11	1.11
Large Retail	Lighting Interior Fluorescent	1.00	1.00	5.30	0.00
Large Retail	Lighting Interior Hid	1.00	1.00	1.14	0.00
Large Retail	Lighting Interior Other	1.00	1.00	0.24	7.01
Large Retail	Lighting Interior Screw Base	1.00	1.00	1.47	0.00
Large Retail	Other Plug Load	1.00	1.00	0.28	0.19
Large Retail	Photo Copiers	1.00	1.00	0.00	0.00
Large Retail	Printers	1.00	1.00	0.01	0.01
Large Retail	Refrigerators	1.00	1.00	0.00	0.00
Large Retail	Room Cool	0.20	1.00	0.05	0.05
Large Retail	Room Heat	0.00	1.00	0.14	0.14
Large Retail	Servers	1.00	1.00	0.02	0.02
Large Retail	Space Heat	0.92	0.25	0.55	0.55
Large Retail	Vending Machines	1.00	1.00	0.05	0.05
Large Retail	Ventilation And Circulation	0.90	1.00	2.28	2.28
Large Retail	Water Heat Gt 55 Gal	0.21	0.67	0.24	0.24
Large Retail	Water Heat Le 55 Gal	0.78	0.67	0.51	0.50
Lodging	Computers	1.00	1.00	0.05	0.05
Lodging	Cooking	0.99	0.67	0.13	0.13
Lodging	Cooling Chillers	0.19	1.00	0.96	0.96
Lodging	Cooling Dx Evap	0.14	1.00	1.43	1.43
Lodging	Fax	1.00	1.00	0.00	0.00

Lodging	Flat Screen Monitors	1.00	1.00	0.01	0.01
Lodging	Freezers	1.00	1.00	0.01	0.01
Lodging	Heat Pump	0.10	1.00	1.71	1.71
Lodging	Lighting Exterior	1.00	1.00	0.66	0.66
Lodging	Lighting Interior Fluorescent	1.00	1.00	1.07	0.00
Lodging	Lighting Interior Hid	1.00	1.00	0.05	0.00
Lodging	Lighting Interior Other	1.00	1.00	0.04	2.55
Lodging	Lighting Interior Screw Base	1.00	1.00	3.04	0.00
Lodging	Other Plug Load	1.00	1.00	0.46	0.35
Lodging	Package Terminal AC	0.72	1.00	0.10	0.10
Lodging	Package Terminal HP	0.42	1.00	2.01	2.01
Lodging	Photo Copiers	1.00	1.00	0.00	0.00
Lodging	Pool Pump	0.50	1.00	0.58	0.58
Lodging	Printers	1.00	1.00	0.01	0.01
Lodging	Refrigeration	1.00	1.00	0.69	0.50
Lodging	Refrigerators	1.00	1.00	0.08	0.08
Lodging	Room Cool	0.00	1.00	0.11	0.11
Lodging	Room Heat	0.00	1.00	0.42	0.42
Lodging	Servers	1.00	1.00	0.00	0.00
Lodging	Space Heat	0.44	0.54	0.90	0.90
Lodging	Vending Machines	1.00	1.00	0.23	0.22
Lodging	Ventilation And Circulation	0.43	1.00	0.36	0.36
Lodging	Water Heat Gt 55 Gal	0.40	0.58	0.40	0.40
Lodging	Water Heat Le 55 Gal	0.59	0.58	0.86	0.83
Miscellaneous	Computers	1.00	1.00	0.10	0.11
Miscellaneous	Cooking	0.99	0.55	0.01	0.01
Miscellaneous	Cooling Chillers	0.00	1.00	1.03	1.03
Miscellaneous	Cooling Dx Evap	0.29	1.00	1.52	1.52
Miscellaneous	Fax	1.00	1.00	0.01	0.01
Miscellaneous	Flat Screen Monitors	1.00	1.00	0.02	0.02
Miscellaneous	Freezers	1.00	1.00	0.01	0.01
Miscellaneous	Heat Pump	0.23	1.00	1.64	1.64
Miscellaneous	Lighting Exterior	1.00	1.00	1.23	1.23
Miscellaneous	Lighting Interior Fluorescent	1.00	1.00	2.67	0.00
Miscellaneous	Lighting Interior Hid	1.00	1.00	1.14	0.00
Miscellaneous	Lighting Interior Other	1.00	1.00	0.13	3.76
Miscellaneous	Lighting Interior Screw Base	1.00	1.00	0.71	0.00
Miscellaneous	Other Plug Load	1.00	1.00	0.13	0.06
Miscellaneous	Package Terminal AC	0.20	1.00	0.17	0.17

Miscellaneous	Package Terminal HP	0.09	1.00	1.95	1.95
Miscellaneous	Photo Copiers	1.00	1.00	0.01	0.01
Miscellaneous	Pool Pump	0.25	1.00	1.70	1.70
Miscellaneous	Printers	1.00	1.00	0.02	0.02
Miscellaneous	Refrigeration	1.00	1.00	0.51	0.37
Miscellaneous	Refrigerators	1.00	1.00	0.05	0.05
Miscellaneous	Room Cool	0.00	1.00	0.19	0.19
Miscellaneous	Room Heat	0.02	1.00	0.18	0.18
Miscellaneous	Servers	1.00	1.00	0.01	0.01
Miscellaneous	Space Heat	0.68	0.45	0.34	0.34
Miscellaneous	Vending Machines	1.00	1.00	0.15	0.15
Miscellaneous	Ventilation And Circulation	0.66	1.00	3.01	3.01
Miscellaneous	Water Heat Gt 55 Gal	0.40	0.58	0.07	0.07
Miscellaneous	Water Heat Le 55 Gal	0.59	0.58	0.14	0.14
Restaurant	Computers	1.00	1.00	0.05	0.05
Restaurant	Cooking	0.99	0.43	3.32	3.32
Restaurant	Cooling Dx Evap	0.62	1.00	3.43	3.43
Restaurant	Fax	1.00	1.00	0.00	0.00
Restaurant	Flat Screen Monitors	1.00	1.00	0.01	0.01
Restaurant	Freezers	1.00	1.00	0.02	0.02
Restaurant	Heat Pump	0.14	1.00	3.90	3.90
Restaurant	Lighting Exterior	1.00	1.00	2.36	2.36
Restaurant	Lighting Interior Fluorescent	1.00	1.00	4.46	0.00
Restaurant	Lighting Interior Hid	1.00	1.00	0.38	0.00
Restaurant	Lighting Interior Other	1.00	1.00	0.32	7.70
Restaurant	Lighting Interior Screw Base	1.00	1.00	5.55	0.00
Restaurant	Other Plug Load	1.00	1.00	0.56	0.43
Restaurant	Photo Copiers	1.00	1.00	0.00	0.00
Restaurant	Printers	1.00	1.00	0.01	0.01
Restaurant	Refrigeration	1.00	1.00	14.45	11.55
Restaurant	Refrigerators	1.00	1.00	0.14	0.14
Restaurant	Room Cool	0.00	1.00	0.35	0.35
Restaurant	Room Heat	0.03	1.00	0.97	0.97
Restaurant	Servers	1.00	1.00	0.01	0.01
Restaurant	Space Heat	0.85	0.44	1.43	1.43
Restaurant	Vending Machines	1.00	1.00	0.05	0.05
Restaurant	Ventilation And Circulation	0.83	1.00	2.64	2.64
Restaurant	Water Heat Gt 55 Gal	0.50	0.45	1.24	1.24
Restaurant	Water Heat Le 55 Gal	0.48	0.45	2.64	2.56

School	Computers	1.00	1.00	0.34	0.35
School	Cooking	0.99	0.58	0.05	0.05
School	Cooling Chillers	0.07	1.00	0.80	0.80
School	Cooling Dx Evap	0.35	1.00	1.33	1.33
School	Fax	1.00	1.00	0.00	0.00
School	Flat Screen Monitors	1.00	1.00	0.07	0.07
School	Freezers	1.00	1.00	0.01	0.01
School	Heat Pump	0.23	1.00	1.50	1.50
School	Lighting Exterior	1.00	1.00	0.76	0.76
School	Lighting Interior Fluorescent	1.00	1.00	3.15	0.00
School	Lighting Interior Hid	1.00	1.00	0.37	0.00
School	Lighting Interior Other	1.00	1.00	0.02	3.08
School	Lighting Interior Screw Base	1.00	1.00	0.13	0.00
School	Other Plug Load	1.00	1.00	0.98	0.66
School	Photo Copiers	1.00	1.00	0.01	0.01
School	Pool Pump	0.05	1.00	0.58	0.58
School	Printers	1.00	1.00	0.03	0.03
School	Refrigeration	1.00	1.00	0.30	0.20
School	Refrigerators	1.00	1.00	0.05	0.05
School	Room Cool	0.17	1.00	0.03	0.03
School	Room Heat	0.00	1.00	0.13	0.13
School	Servers	1.00	1.00	0.02	0.02
School	Space Heat	0.79	0.54	0.35	0.35
School	Vending Machines	1.00	1.00	0.20	0.20
School	Ventilation And Circulation	0.77	1.00	2.60	2.60
School	Water Heat Gt 55 Gal	0.40	0.58	0.24	0.24
School	Water Heat Le 55 Gal	0.59	0.58	0.51	0.49
Small Office	Computers	1.00	1.00	0.49	0.50
Small Office	Cooling Dx Evap	0.44	1.00	1.81	1.81
Small Office	Fax	1.00	1.00	0.02	0.02
Small Office	Flat Screen Monitors	1.00	1.00	0.10	0.10
Small Office	Freezers	1.00	1.00	0.01	0.01
Small Office	Heat Pump	0.36	1.00	2.08	2.08
Small Office	Lighting Exterior	1.00	1.00	1.28	1.28
Small Office	Lighting Interior Fluorescent	1.00	1.00	3.13	0.00
Small Office	Lighting Interior Hid	1.00	1.00	0.14	0.00
Small Office	Lighting Interior Other	1.00	1.00	0.04	3.01
Small Office	Lighting Interior Screw Base	1.00	1.00	0.44	0.00
Small Office	Other Plug Load	1.00	1.00	1.28	0.82

Small Office	Photo Copiers	1.00	1.00	0.03	0.03
Small Office	Printers	1.00	1.00	0.07	0.06
Small Office	Refrigerators	1.00	1.00	0.07	0.07
Small Office	Room Cool	0.17	1.00	0.26	0.26
Small Office	Room Heat	0.07	1.00	0.51	0.51
Small Office	Servers	1.00	1.00	0.09	0.08
Small Office	Space Heat	0.58	0.50	0.81	0.81
Small Office	Vending Machines	1.00	1.00	0.21	0.20
Small Office	Ventilation And Circulation	0.57	1.00	0.91	0.91
Small Office	Water Heat Gt 55 Gal	0.05	0.55	0.07	0.07
Small Office	Water Heat Le 55 Gal	0.93	0.55	0.15	0.14
Small Retail	Computers	1.00	1.00	0.09	0.10
Small Retail	Cooling Dx Evap	0.45	1.00	0.78	0.78
Small Retail	Fax	1.00	1.00	0.01	0.01
Small Retail	Flat Screen Monitors	1.00	1.00	0.02	0.02
Small Retail	Freezers	1.00	1.00	0.01	0.01
Small Retail	Heat Pump	0.12	1.00	0.85	0.85
Small Retail	Lighting Exterior	1.00	1.00	1.11	1.11
Small Retail	Lighting Interior Fluorescent	1.00	1.00	5.30	0.00
Small Retail	Lighting Interior Hid	1.00	1.00	1.14	0.00
Small Retail	Lighting Interior Other	1.00	1.00	0.24	7.01
Small Retail	Lighting Interior Screw Base	1.00	1.00	1.47	0.00
Small Retail	Other Plug Load	1.00	1.00	0.18	0.10
Small Retail	Photo Copiers	1.00	1.00	0.01	0.01
Small Retail	Printers	1.00	1.00	0.02	0.02
Small Retail	Refrigerators	1.00	1.00	0.05	0.05
Small Retail	Room Cool	0.28	1.00	0.35	0.35
Small Retail	Room Heat	0.12	1.00	0.13	0.13
Small Retail	Servers	1.00	1.00	0.02	0.02
Small Retail	Space Heat	0.78	0.31	0.20	0.20
Small Retail	Vending Machines	1.00	1.00	0.25	0.25
Small Retail	Ventilation And Circulation	0.76	1.00	0.32	0.32
Small Retail	Water Heat Gt 55 Gal	0.16	0.72	0.03	0.03
Small Retail	Water Heat Le 55 Gal	0.83	0.72	0.06	0.06
Warehouse	Computers	1.00	1.00	0.04	0.04
Warehouse	Cooling Chillers	0.00	1.00	0.24	0.24
Warehouse	Cooling Dx Evap	0.26	1.00	0.36	0.36
Warehouse	Fax	1.00	1.00	0.00	0.00
Warehouse	Flat Screen Monitors	1.00	1.00	0.01	0.01

Warehouse	Freezers	1.00	1.00	0.00	0.00
Warehouse	Heat Pump	0.14	1.00	0.41	0.41
Warehouse	Lighting Exterior	1.00	1.00	0.28	0.28
Warehouse	Lighting Interior Fluorescent	1.00	1.00	1.46	0.00
Warehouse	Lighting Interior Hid	1.00	1.00	1.50	0.00
Warehouse	Lighting Interior Other	1.00	1.00	0.01	2.75
Warehouse	Lighting Interior Screw Base	1.00	1.00	0.59	0.00
Warehouse	Other Plug Load	1.00	1.00	0.06	0.03
Warehouse	Photo Copiers	1.00	1.00	0.00	0.00
Warehouse	Printers	1.00	1.00	0.01	0.01
Warehouse	Refrigeration	1.00	1.00	1.93	1.54
Warehouse	Refrigerators	1.00	1.00	0.01	0.01
Warehouse	Room Cool	0.31	1.00	0.08	0.08
Warehouse	Room Heat	0.11	1.00	0.08	0.08
Warehouse	Servers	1.00	1.00	0.02	0.02
Warehouse	Space Heat	0.77	0.38	0.15	0.15
Warehouse	Vending Machines	1.00	1.00	0.05	0.05
Warehouse	Ventilation And Circulation	0.76	1.00	0.31	0.31
Warehouse	Water Heat Gt 55 Gal	0.40	0.58	0.02	0.02
Warehouse	Water Heat Le 55 Gal	0.59	0.58	0.03	0.03

Table C5. Residential Electric (LGE) Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Fuel Share	Weighted Average UEC (2013) Existing	Weighted Average UEC (2013) New
Multifamily	Computer	1.61	1.00	194	197
Multifamily	Cooking Oven	0.98	0.85	105	105
Multifamily	Cooking Range	0.98	0.85	53	53
Multifamily	Cool Central	0.87	1.00	1,479	1,012
Multifamily	Cool Room	0.13	1.00	384	384
Multifamily	Copier	0.05	1.00	146	151
Multifamily	Dehumidifier	0.07	1.00	851	851
Multifamily	Dryer	0.71	0.93	576	576
Multifamily	DVD	1.04	1.00	20	21
Multifamily	Freezer	0.17	1.00	340	340
Multifamily	Heat Central	0.83	0.40	5,863	4,081

Multifamily	Heat Pump	0.09	1.00	5,168	4,127
Multifamily	Heat Room	0.00	1.00	4,455	3,101
Multifamily	Home Audio System	1.22	1.00	102	105
Multifamily	Lighting Interior Specialty	3.81	1.00	34	34
Multifamily	Lighting Standard	21.57	1.00	31	31
Multifamily	Monitor	0.77	1.00	57	58
Multifamily	Multifunction Device	0.53	1.00	180	141
Multifamily	Plug Load Other	0.98	1.00	290	290
Multifamily	Printer	0.00	1.00	162	141
Multifamily	Refrigerator	1.10	1.00	506	505
Multifamily	Set Top Box	1.44	1.00	199	184
Multifamily	TV	2.07	1.00	186	166
Multifamily	Ventilation and Circulation	0.83	1.00	508	508
Multifamily	Water Heat GT 55 Gal	0.29	0.43	2,919	2,919
Multifamily	Water Heat LE 55 Gal	0.69	0.43	2,679	2,588
Single Family	Computer	1.97	1.00	194	197
Single Family	Cooking Oven	0.98	0.67	105	105
Single Family	Cooking Range	0.98	0.67	53	53
Single Family	Cool Central	1.01	1.00	2,769	1,653
Single Family	Cool Room	0.16	1.00	384	384
Single Family	Copier	0.12	1.00	146	151
Single Family	Dehumidifier	0.27	1.00	851	851
Single Family	Dryer	0.95	0.81	772	771
Single Family	DVD	1.33	1.00	20	21
Single Family	Freezer	0.42	1.00	340	340
Single Family	Heat Central	0.86	0.09	9,584	8,282
Single Family	Heat Pump	0.10	1.00	9,578	8,126
Single Family	Heat Room	0.00	1.00	7,283	6,293
Single Family	Home Audio System	1.27	1.00	102	105
Single Family	Lighting Interior Specialty	7.47	1.00	34	34
Single Family	Lighting Standard	42.31	1.00	29	29
Single Family	Monitor	1.05	1.00	57	58
Single Family	Multifunction Device	0.91	1.00	180	141
Single Family	Plug Load Other	0.98	1.00	731	731
Single Family	Pool Pump	0.08	1.00	1,340	1,340
Single Family	Printer	0.00	1.00	162	141
Single Family	Refrigerator	1.38	1.00	498	496
Single Family	Set Top Box	1.98	1.00	199	184
Single Family	TV	3.10	1.00	186	166

Single Family	Ventilation and Circulation	0.86	1.00	848	848
Single Family	Water Heat GT 55 Gal	0.39	0.24	3,567	3,567
Single Family	Water Heat LE 55 Gal	0.59	0.24	3,313	3,198

Table C6. Residential Gas (LGE) Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Fuel Share	Weighted Average UEC (2013) Existing	Weighted Average UEC (2013) New
Multifamily	Cooking Oven	0.91	0.15	22	22
Multifamily	Cooking Range	0.91	0.15	24	24
Multifamily	Dryer	0.66	0.06	17	17
Multifamily	Heat Central Boiler	0.00	1.00	550	452
Multifamily	Heat Central Furnace	0.85	0.60	343	244
Multifamily	Water Heat GT 55 Gal	0.30	0.51	117	117
Multifamily	Water Heat LE 55 Gal	0.70	0.51	140	140
Single Family	Cooking Oven	0.91	0.31	22	22
Single Family	Cooking Range	0.91	0.31	24	24
Single Family	Dryer	0.88	0.19	22	22
Single Family	Heat Central Boiler	0.00	1.00	767	704
Single Family	Heat Central Furnace	0.87	0.91	606	525
Single Family	Pool Heat	0.03	1.00	257	257
Single Family	Water Heat GT 55 Gal	0.40	0.75	145	145
Single Family	Water Heat LE 55 Gal	0.60	0.75	173	173

Table C5. Commercial Electric (LGE) Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Fuel Share	Weighted Average EUI (2013) Existing	Weighted Average EUI (2013) New
Grocery	Computers	1.00	1.00	0.09	0.09
Grocery	Cooking	0.99	0.67	0.55	0.55
Grocery	Cooling Dx Evap	0.73	1.00	1.79	1.79
Grocery	Fax	1.00	1.00	0.00	0.00
Grocery	Flat Screen Monitors	1.00	1.00	0.02	0.02

Grocery	Freezers	1.00	1.00	0.00	0.00
Grocery	Heat Pump	0.18	1.00	2.56	2.56
Grocery	Lighting Exterior	1.01	1.00	1.05	1.05
Grocery	Lighting Interior Fluorescent	1.01	1.00	7.48	0.00
Grocery	Lighting Interior Hid	1.01	1.00	1.24	0.00
Grocery	Lighting Interior Other	1.01	1.00	0.16	8.41
Grocery	Lighting Interior Screw Base	1.01	1.00	1.49	0.00
Grocery	Other Plug Load	1.00	1.00	0.55	0.39
Grocery	Photo Copiers	1.00	1.00	0.01	0.01
Grocery	Printers	1.00	1.00	0.03	0.02
Grocery	Refrigeration	1.01	1.00	26.86	21.44
Grocery	Refrigerators	1.00	1.00	0.02	0.02
Grocery	Room Cool	0.00	1.00	0.72	0.72
Grocery	Room Heat	0.09	1.00	1.76	1.76
Grocery	Servers	1.00	1.00	0.03	0.03
Grocery	Space Heat	0.73	0.40	2.54	2.54
Grocery	Vending Machines	1.00	1.00	0.21	0.21
Grocery	Ventilation And Circulation	0.73	1.00	1.42	1.42
Grocery	Water Heat Gt 55 Gal	0.40	0.58	0.10	0.10
Grocery	Water Heat Le 55 Gal	0.59	0.58	0.21	0.20
Health	Computers	1.00	1.00	0.22	0.22
Health	Cooking	0.99	0.26	0.07	0.07
Health	Cooling Chillers	0.46	1.00	2.16	2.16
Health	Cooling Dx Evap	0.36	1.00	3.55	3.55
Health	Fax	1.00	1.00	0.01	0.01
Health	Flat Screen Monitors	1.00	1.00	0.05	0.05
Health	Freezers	1.00	1.00	0.00	0.00
Health	Heat Pump	0.00	1.00	3.85	3.85
Health	Lighting Exterior	1.01	1.00	0.58	0.58
Health	Lighting Interior Fluorescent	1.01	1.00	4.83	0.00
Health	Lighting Interior Hid	1.01	1.00	0.13	0.00
Health	Lighting Interior Other	1.01	1.00	0.27	4.72
Health	Lighting Interior Screw Base	1.01	1.00	2.30	0.00
Health	Other Plug Load	1.00	1.00	3.32	2.57
Health	Photo Copiers	1.00	1.00	0.01	0.01
Health	Printers	1.00	1.00	0.04	0.03
Health	Refrigeration	1.01	1.00	0.44	0.33
Health	Refrigerators	1.00	1.00	0.04	0.04
Health	Room Cool	0.19	1.00	0.09	0.09

Health	Room Heat	0.06	1.00	0.20	0.20
Health	Servers	1.00	1.00	0.02	0.02
Health	Space Heat	0.95	0.33	0.40	0.40
Health	Vending Machines	1.00	1.00	0.11	0.11
Health	Ventilation And Circulation	0.94	1.00	4.39	4.39
Health	Water Heat Gt 55 Gal	0.40	0.58	0.16	0.16
Health	Water Heat Le 55 Gal	0.59	0.58	0.33	0.32
Large Office	Computers	1.00	1.00	0.53	0.54
Large Office	Cooling Chillers	0.38	1.00	2.32	2.32
Large Office	Cooling Dx Evap	0.42	1.00	4.83	4.83
Large Office	Fax	1.00	1.00	0.01	0.01
Large Office	Flat Screen Monitors	1.00	1.00	0.11	0.11
Large Office	Freezers	1.00	1.00	0.00	0.00
Large Office	Heat Pump	0.04	1.00	5.07	5.07
Large Office	Lighting Exterior	1.01	1.00	0.51	0.51
Large Office	Lighting Interior Fluorescent	1.01	1.00	3.01	0.00
Large Office	Lighting Interior Hid	1.01	1.00	0.14	0.00
Large Office	Lighting Interior Other	1.01	1.00	0.04	3.01
Large Office	Lighting Interior Screw Base	1.01	1.00	0.71	0.00
Large Office	Other Plug Load	1.00	1.00	1.47	0.98
Large Office	Photo Copiers	1.00	1.00	0.01	0.01
Large Office	Printers	1.00	1.00	0.10	0.09
Large Office	Refrigerators	1.00	1.00	0.03	0.03
Large Office	Room Cool	0.07	1.00	0.03	0.03
Large Office	Room Heat	0.00	1.00	0.51	0.51
Large Office	Servers	1.00	1.00	0.05	0.05
Large Office	Space Heat	0.97	0.12	0.75	0.75
Large Office	Vending Machines	1.00	1.00	0.09	0.09
Large Office	Ventilation And Circulation	0.96	1.00	2.38	2.38
Large Office	Water Heat Gt 55 Gal	0.35	0.52	0.11	0.11
Large Office	Water Heat Le 55 Gal	0.64	0.52	0.23	0.22
Large Retail	Computers	1.00	1.00	0.06	0.06
Large Retail	Cooking	0.99	0.42	0.06	0.06
Large Retail	Cooling Dx Evap	0.67	1.00	5.40	5.40
Large Retail	Fax	1.00	1.00	0.00	0.00
Large Retail	Flat Screen Monitors	1.00	1.00	0.01	0.01
Large Retail	Freezers	1.00	1.00	0.00	0.00
Large Retail	Heat Pump	0.00	1.00	5.58	5.58
Large Retail	Lighting Exterior	1.01	1.00	1.11	1.11

Large Retail	Lighting Interior Fluorescent	1.01	1.00	5.23	0.00
Large Retail	Lighting Interior Hid	1.01	1.00	1.14	0.00
Large Retail	Lighting Interior Other	1.01	1.00	0.24	7.01
Large Retail	Lighting Interior Screw Base	1.01	1.00	2.21	0.00
Large Retail	Other Plug Load	1.00	1.00	0.28	0.19
Large Retail	Photo Copiers	1.00	1.00	0.00	0.00
Large Retail	Printers	1.00	1.00	0.01	0.01
Large Retail	Refrigerators	1.00	1.00	0.00	0.00
Large Retail	Room Cool	0.06	1.00	0.06	0.06
Large Retail	Room Heat	0.00	1.00	0.14	0.14
Large Retail	Servers	1.00	1.00	0.02	0.02
Large Retail	Space Heat	1.00	0.18	0.55	0.55
Large Retail	Vending Machines	1.00	1.00	0.05	0.05
Large Retail	Ventilation And Circulation	1.00	1.00	2.28	2.28
Large Retail	Water Heat Gt 55 Gal	0.21	0.67	0.24	0.24
Large Retail	Water Heat Le 55 Gal	0.78	0.67	0.51	0.50
Lodging	Computers	1.00	1.00	0.05	0.05
Lodging	Cooking	0.99	0.50	0.13	0.13
Lodging	Cooling Chillers	0.08	1.00	0.98	0.98
Lodging	Cooling Dx Evap	0.17	1.00	1.42	1.42
Lodging	Fax	1.00	1.00	0.00	0.00
Lodging	Flat Screen Monitors	1.00	1.00	0.01	0.01
Lodging	Freezers	1.00	1.00	0.01	0.01
Lodging	Heat Pump	0.08	1.00	1.71	1.71
Lodging	Lighting Exterior	1.01	1.00	0.66	0.66
Lodging	Lighting Interior Fluorescent	1.01	1.00	1.07	0.00
Lodging	Lighting Interior Hid	1.01	1.00	0.05	0.00
Lodging	Lighting Interior Other	1.01	1.00	0.04	2.55
Lodging	Lighting Interior Screw Base	1.01	1.00	4.86	0.00
Lodging	Other Plug Load	1.00	1.00	0.46	0.35
Lodging	Package Terminal AC	0.67	1.00	0.13	0.13
Lodging	Package Terminal HP	0.42	1.00	2.01	2.01
Lodging	Photo Copiers	1.00	1.00	0.00	0.00
Lodging	Pool Pump	0.50	1.00	0.58	0.58
Lodging	Printers	1.00	1.00	0.01	0.01
Lodging	Refrigeration	1.01	1.00	0.69	0.50
Lodging	Refrigerators	1.00	1.00	0.08	0.07
Lodging	Room Cool	0.00	1.00	0.14	0.14
Lodging	Room Heat	0.00	1.00	0.42	0.42

Lodging	Servers	1.00	1.00	0.00	0.00
Lodging	Space Heat	0.33	0.80	0.90	0.90
Lodging	Vending Machines	1.00	1.00	0.23	0.22
Lodging	Ventilation And Circulation	0.33	1.00	0.36	0.36
Lodging	Water Heat Gt 55 Gal	0.40	0.58	0.40	0.40
Lodging	Water Heat Le 55 Gal	0.59	0.58	0.86	0.83
Miscellaneous	Computers	1.00	1.00	0.10	0.11
Miscellaneous	Cooking	0.99	0.60	0.01	0.01
Miscellaneous	Cooling Chillers	0.19	1.00	1.05	1.05
Miscellaneous	Cooling Dx Evap	0.54	1.00	1.52	1.52
Miscellaneous	Fax	1.00	1.00	0.01	0.01
Miscellaneous	Flat Screen Monitors	1.00	1.00	0.02	0.02
Miscellaneous	Freezers	1.00	1.00	0.00	0.00
Miscellaneous	Heat Pump	0.12	1.00	1.64	1.64
Miscellaneous	Lighting Exterior	1.01	1.00	1.23	1.23
Miscellaneous	Lighting Interior Fluorescent	1.01	1.00	2.66	0.00
Miscellaneous	Lighting Interior Hid	1.01	1.00	1.14	0.00
Miscellaneous	Lighting Interior Other	1.01	1.00	0.13	3.76
Miscellaneous	Lighting Interior Screw Base	1.01	1.00	1.12	0.00
Miscellaneous	Other Plug Load	1.00	1.00	0.13	0.06
Miscellaneous	Package Terminal AC	0.13	1.00	0.22	0.22
Miscellaneous	Package Terminal HP	0.07	1.00	1.95	1.95
Miscellaneous	Photo Copiers	1.00	1.00	0.01	0.01
Miscellaneous	Pool Pump	0.05	1.00	1.70	1.70
Miscellaneous	Printers	1.00	1.00	0.02	0.02
Miscellaneous	Refrigeration	1.01	1.00	0.51	0.37
Miscellaneous	Refrigerators	1.00	1.00	0.05	0.05
Miscellaneous	Room Cool	0.00	1.00	0.24	0.24
Miscellaneous	Room Heat	0.02	1.00	0.18	0.18
Miscellaneous	Servers	1.00	1.00	0.01	0.01
Miscellaneous	Space Heat	0.79	0.25	0.34	0.34
Miscellaneous	Vending Machines	1.00	1.00	0.15	0.15
Miscellaneous	Ventilation And Circulation	0.79	1.00	3.01	3.01
Miscellaneous	Water Heat Gt 55 Gal	0.40	0.58	0.07	0.07
Miscellaneous	Water Heat Le 55 Gal	0.59	0.58	0.14	0.14
Restaurant	Computers	1.00	1.00	0.05	0.05
Restaurant	Cooking	0.99	0.21	3.32	3.32
Restaurant	Cooling Dx Evap	0.78	1.00	3.42	3.42
Restaurant	Fax	1.00	1.00	0.00	0.00

Restaurant	Flat Screen Monitors	1.00	1.00	0.01	0.01
Restaurant	Freezers	1.00	1.00	0.01	0.01
Restaurant	Heat Pump	0.06	1.00	3.90	3.90
Restaurant	Lighting Exterior	1.01	1.00	2.36	2.36
Restaurant	Lighting Interior Fluorescent	1.01	1.00	4.45	0.00
Restaurant	Lighting Interior Hid	1.01	1.00	0.38	0.00
Restaurant	Lighting Interior Other	1.01	1.00	0.32	7.70
Restaurant	Lighting Interior Screw Base	1.01	1.00	6.72	0.00
Restaurant	Other Plug Load	1.00	1.00	0.56	0.43
Restaurant	Photo Copiers	1.00	1.00	0.00	0.00
Restaurant	Printers	1.00	1.00	0.01	0.01
Restaurant	Refrigeration	1.01	1.00	14.45	11.55
Restaurant	Refrigerators	1.00	1.00	0.14	0.14
Restaurant	Room Cool	0.00	1.00	0.46	0.46
Restaurant	Room Heat	0.03	1.00	0.97	0.97
Restaurant	Servers	1.00	1.00	0.01	0.01
Restaurant	Space Heat	0.96	0.40	1.43	1.43
Restaurant	Vending Machines	1.00	1.00	0.05	0.05
Restaurant	Ventilation And Circulation	0.91	1.00	2.64	2.64
Restaurant	Water Heat Gt 55 Gal	0.51	0.45	1.24	1.24
Restaurant	Water Heat Le 55 Gal	0.48	0.45	2.64	2.56
School	Computers	1.00	1.00	0.34	0.35
School	Cooking	0.99	0.17	0.05	0.05
School	Cooling Chillers	0.13	1.00	0.81	0.81
School	Cooling Dx Evap	0.76	1.00	1.33	1.33
School	Fax	1.00	1.00	0.00	0.00
School	Flat Screen Monitors	1.00	1.00	0.07	0.07
School	Freezers	1.00	1.00	0.00	0.00
School	Heat Pump	0.00	1.00	1.50	1.50
School	Lighting Exterior	1.01	1.00	0.76	0.76
School	Lighting Interior Fluorescent	1.01	1.00	3.15	0.00
School	Lighting Interior Hid	1.01	1.00	0.37	0.00
School	Lighting Interior Other	1.01	1.00	0.02	3.08
School	Lighting Interior Screw Base	1.01	1.00	0.21	0.00
School	Other Plug Load	1.00	1.00	0.98	0.66
School	Photo Copiers	1.00	1.00	0.01	0.01
School	Pool Pump	0.05	1.00	0.58	0.58
School	Printers	1.00	1.00	0.03	0.03
School	Refrigeration	1.01	1.00	0.30	0.20

School	Refrigerators	1.00	1.00	0.05	0.05
School	Room Cool	0.13	1.00	0.04	0.04
School	Room Heat	0.00	1.00	0.13	0.13
School	Servers	1.00	1.00	0.02	0.02
School	Space Heat	1.00	0.33	0.35	0.35
School	Vending Machines	1.00	1.00	0.20	0.20
School	Ventilation And Circulation	1.00	1.00	2.60	2.60
School	Water Heat Gt 55 Gal	0.40	0.58	0.24	0.24
School	Water Heat Le 55 Gal	0.59	0.58	0.51	0.49
Small Office	Computers	1.00	1.00	0.49	0.50
Small Office	Cooling Dx Evap	0.60	1.00	1.81	1.81
Small Office	Fax	1.00	1.00	0.02	0.02
Small Office	Flat Screen Monitors	1.00	1.00	0.10	0.10
Small Office	Freezers	1.00	1.00	0.01	0.01
Small Office	Heat Pump	0.08	1.00	2.08	2.08
Small Office	Lighting Exterior	1.01	1.00	1.28	1.28
Small Office	Lighting Interior Fluorescent	1.01	1.00	3.01	0.00
Small Office	Lighting Interior Hid	1.01	1.00	0.14	0.00
Small Office	Lighting Interior Other	1.01	1.00	0.04	3.01
Small Office	Lighting Interior Screw Base	1.01	1.00	0.81	0.00
Small Office	Other Plug Load	1.00	1.00	1.28	0.82
Small Office	Photo Copiers	1.00	1.00	0.03	0.03
Small Office	Printers	1.00	1.00	0.07	0.06
Small Office	Refrigerators	1.00	1.00	0.07	0.07
Small Office	Room Cool	0.16	1.00	0.34	0.34
Small Office	Room Heat	0.08	1.00	0.51	0.51
Small Office	Servers	1.00	1.00	0.09	0.08
Small Office	Space Heat	0.84	0.25	0.81	0.81
Small Office	Vending Machines	1.00	1.00	0.21	0.20
Small Office	Ventilation And Circulation	0.83	1.00	0.91	0.91
Small Office	Water Heat Gt 55 Gal	0.05	0.55	0.07	0.07
Small Office	Water Heat Le 55 Gal	0.94	0.55	0.15	0.14
Small Retail	Computers	1.00	1.00	0.09	0.10
Small Retail	Cooling Dx Evap	0.57	1.00	0.78	0.78
Small Retail	Fax	1.00	1.00	0.01	0.01
Small Retail	Flat Screen Monitors	1.00	1.00	0.02	0.02
Small Retail	Freezers	1.00	1.00	0.00	0.00
Small Retail	Heat Pump	0.00	1.00	0.85	0.85
Small Retail	Lighting Exterior	1.01	1.00	1.11	1.11

Small Retail	Lighting Interior Fluorescent	1.01	1.00	5.23	0.00
Small Retail	Lighting Interior Hid	1.01	1.00	1.14	0.00
Small Retail	Lighting Interior Other	1.01	1.00	0.24	7.01
Small Retail	Lighting Interior Screw Base	1.01	1.00	4.11	0.00
Small Retail	Other Plug Load	1.00	1.00	0.18	0.10
Small Retail	Photo Copiers	1.00	1.00	0.01	0.01
Small Retail	Printers	1.00	1.00	0.02	0.02
Small Retail	Refrigerators	1.00	1.00	0.05	0.05
Small Retail	Room Cool	0.13	1.00	0.45	0.45
Small Retail	Room Heat	0.04	1.00	0.13	0.13
Small Retail	Servers	1.00	1.00	0.02	0.02
Small Retail	Space Heat	0.96	0.30	0.20	0.20
Small Retail	Vending Machines	1.00	1.00	0.25	0.25
Small Retail	Ventilation And Circulation	0.96	1.00	0.32	0.32
Small Retail	Water Heat Gt 55 Gal	0.16	0.72	0.03	0.03
Small Retail	Water Heat Le 55 Gal	0.83	0.72	0.06	0.06
Warehouse	Computers	1.00	1.00	0.04	0.04
Warehouse	Cooling Chillers	0.14	1.00	0.25	0.25
Warehouse	Cooling Dx Evap	0.58	1.00	0.36	0.36
Warehouse	Fax	1.00	1.00	0.00	0.00
Warehouse	Flat Screen Monitors	1.00	1.00	0.01	0.01
Warehouse	Freezers	1.00	1.00	0.00	0.00
Warehouse	Heat Pump	0.06	1.00	0.41	0.41
Warehouse	Lighting Exterior	1.01	1.00	0.28	0.28
Warehouse	Lighting Interior Fluorescent	1.01	1.00	1.46	0.00
Warehouse	Lighting Interior Hid	1.01	1.00	1.50	0.00
Warehouse	Lighting Interior Other	1.01	1.00	0.01	2.75
Warehouse	Lighting Interior Screw Base	1.01	1.00	0.94	0.00
Warehouse	Other Plug Load	1.00	1.00	0.06	0.03
Warehouse	Photo Copiers	1.00	1.00	0.00	0.00
Warehouse	Printers	1.00	1.00	0.01	0.01
Warehouse	Refrigeration	1.01	1.00	1.93	1.54
Warehouse	Refrigerators	1.00	1.00	0.01	0.01
Warehouse	Room Cool	0.11	1.00	0.11	0.11
Warehouse	Room Heat	0.06	1.00	0.08	0.08
Warehouse	Servers	1.00	1.00	0.02	0.02
Warehouse	Space Heat	0.88	0.04	0.15	0.15
Warehouse	Vending Machines	1.00	1.00	0.05	0.05
Warehouse	Ventilation And Circulation	0.88	1.00	0.31	0.31

Warehouse	Water Heat Gt 55 Gal	0.40	0.58	0.02	0.02
Warehouse	Water Heat Le 55 Gal	0.59	0.58	0.03	0.03

Table C6. Commercial Gas (LGE) Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Fuel Share	Weighted Average EUI (2013) Existing	Weighted Average EUI (2013) New
Grocery	Cooking	1.02	0.33	0.08	0.08
Grocery	Space Heat Boiler	0.17	1.00	0.30	0.30
Grocery	Space Heat Furnace	0.85	0.60	0.31	0.31
Grocery	Water Heat Gt 55 Gal	0.40	0.42	0.03	0.03
Grocery	Water Heat Le 55 Gal	0.59	0.42	0.03	0.03
Health	Cooking	1.02	0.74	0.03	0.03
Health	Space Heat Boiler	0.13	1.00	0.39	0.39
Health	Space Heat Furnace	0.89	0.67	0.40	0.40
Health	Water Heat Gt 55 Gal	0.40	0.42	0.31	0.31
Health	Water Heat Le 55 Gal	0.59	0.42	0.35	0.35
Large Office	Space Heat Boiler	0.18	1.00	0.23	0.23
Large Office	Space Heat Furnace	0.84	0.88	0.25	0.25
Large Office	Water Heat Gt 55 Gal	0.40	0.48	0.01	0.01
Large Office	Water Heat Le 55 Gal	0.59	0.48	0.01	0.01
Large Retail	Cooking	1.02	0.58	0.02	0.02
Large Retail	Space Heat Boiler	0.00	1.00	0.22	0.22
Large Retail	Space Heat Furnace	1.02	0.82	0.23	0.22
Large Retail	Water Heat Gt 55 Gal	0.40	0.33	0.00	0.00
Large Retail	Water Heat Le 55 Gal	0.59	0.33	0.01	0.01
Lodging	Cooking	1.02	0.50	0.03	0.03
Lodging	Pool Heat	0.50	1.00	0.29	0.29
Lodging	Space Heat Boiler	1.02	1.00	0.09	0.09
Lodging	Space Heat Furnace	0.00	0.20	0.10	0.10
Lodging	Water Heat Gt 55 Gal	0.40	0.42	0.24	0.24
Lodging	Water Heat Le 55 Gal	0.59	0.42	0.27	0.27
Miscellaneous	Cooking	1.02	0.40	0.01	0.01
Miscellaneous	Pool Heat	0.25	1.00	0.29	0.29
Miscellaneous	Space Heat Boiler	0.10	1.00	0.39	0.39
Miscellaneous	Space Heat Furnace	0.91	0.75	0.40	0.40

Miscellaneous	Water Heat Gt 55 Gal	0.40	0.42	0.01	0.01
Miscellaneous	Water Heat Le 55 Gal	0.59	0.42	0.01	0.01
Restaurant	Cooking	1.02	0.79	0.66	0.66
Restaurant	Space Heat Boiler	0.06	1.00	0.21	0.21
Restaurant	Space Heat Furnace	0.96	0.60	0.21	0.21
Restaurant	Water Heat Gt 55 Gal	0.40	0.55	0.36	0.36
Restaurant	Water Heat Le 55 Gal	0.59	0.55	0.41	0.41
School	Cooking	1.02	0.83	0.01	0.01
School	Pool Heat	0.05	1.00	0.29	0.29
School	Space Heat Boiler	0.25	1.00	0.18	0.18
School	Space Heat Furnace	0.76	0.67	0.19	0.19
School	Water Heat Gt 55 Gal	0.40	0.42	0.04	0.04
School	Water Heat Le 55 Gal	0.59	0.42	0.05	0.05
Small Office	Space Heat Boiler	0.04	1.00	0.24	0.24
Small Office	Space Heat Furnace	0.97	0.75	0.24	0.24
Small Office	Water Heat Gt 55 Gal	0.40	0.45	0.01	0.01
Small Office	Water Heat Le 55 Gal	0.59	0.45	0.01	0.01
Small Retail	Space Heat Boiler	0.07	1.00	0.29	0.29
Small Retail	Space Heat Furnace	0.94	0.70	0.30	0.30
Small Retail	Water Heat Gt 55 Gal	0.40	0.28	0.01	0.01
Small Retail	Water Heat Le 55 Gal	0.59	0.28	0.01	0.01
Warehouse	Space Heat Boiler	0.00	1.00	0.04	0.04
Warehouse	Space Heat Furnace	1.02	0.96	0.05	0.04
Warehouse	Water Heat Gt 55 Gal	0.40	0.42	0.00	0.00
Warehouse	Water Heat Le 55 Gal	0.59	0.42	0.00	0.00

Appendix D. Measure Descriptions

1. Residential Electric Retrofit Measure Descriptions

Heating and Cooling

Construction—ICF. Building a concrete home with insulating concrete forms (ICFs) saves energy. The greater insulation, tighter construction, and temperature-moderating mass of the walls conserve heating and cooling energy much more effectively than conventional wood-frame walls.

Construction—SIP. Structural insulated panels (SIPs) use continuous foam insulation throughout the panel, providing excellent energy efficiency and low air infiltration levels. The baseline is standard wood framing.

Cool Roofs. ENERGY STAR-qualified cool roofs, with reflective coatings, can lower roof surface temperatures by up to 100°F, decreasing amounts of heat transferred into a building. Cool roofs can help reduce amounts of air conditioning needed in buildings, and can reduce peak cooling demand by 10% to 15%.³

Doors. Composite or steel doors with a foam core increase overall insulation, slowing heat loss. This measure includes adding a thermal door with a resistance value of R-5 or R-11 to houses without a thermal or storm door (R-2.9, KY code).

Duct Sealing and Insulation. Duct sealing and insulation cost-effectively save energy, improve air and thermal distribution (comfort and ventilation), and reduce cross-contamination between different zones in buildings (e.g., smoking vs. non-smoking, bio-aerosols, localized indoor air pollutants). This measure assumes a baseline of existing duct conditions sealed and insulated to R-8.

Duct System Efficiency Upgrade—Ducts Inside. In many homes, ducts run through unconditioned areas, such as attics, garages, crawlspaces, and basements, for convenience and practical reasons. Ducts in unconditioned areas lose energy due to large temperature differences between conditioned air in the ducts and the surrounding space. Locating ducts in conditioned spaces helps to reduce wasted heat loss.⁴

Green Roof. The added mass and thermal resistance of green roofs reduce building heating and cooling loads. These systems reduce ambient temperatures around a roof, decreasing a building's urban heat island effect, reducing the ambient temperature of the roof's surface, and slowing the transfer of heat

³ <http://www.aceee.org/consumer/cooling>

⁴ http://www.toolbase.org/pdf/techinv/ductsinconditionedspace_techs pec.pdf

into the building, thus lowering cooling costs. They also provide added insulation to the roof structure, reducing heating requirements in winter.⁵

Heat Exchangers, Air-to-Air. An air-to-air heat exchanger mechanically ventilates homes in colder climates. During winter, it transfers heat from exhausted air to fresh, outside air entering the home. Fifty percent to 80% of the heat normally lost in exhausted air returns to the house. Air-to-air heat exchangers can be installed as part of a central heating and cooling system, or in walls or windows. Wall and window-mounted units resemble air conditioners and ventilate one room or an area.⁶

Infiltration Control—Reduction of Existing Conditions. Sealing air leaks in windows, doors, a roof, crawlspaces, and outside walls prevents drafts and reduces overall heating and cooling losses.

Infiltration Control—Reduction of New Thermal Shell. Heat recovery ventilation (HRV) provides fresh air and improved climate control, while saving energy by reducing heating (or cooling) requirements of a building. Combining this feature with better infiltration control (0.2 air changes per hour) minimizes the energy needed to maintain a healthy level of fresh air and reduces heat loss due to air leakage.

Insulation—Attic/Ceiling. This measure represents an increase in R-value. Adding insulation in existing buildings increases thermal performance, and brings the resistance value up to and past code, depending on the vintage. Table D-1.7 summarizes different resistance values compared in the measure.

Table D-1.7. Ceiling R-Value Comparison

Measure Insulation	Baseline Insulation
R-49 (KY Code)	R-15 (Existing Insulation)
R-49 (Above KY Code)	R-38 (KY Code)

Insulation- Basement Wall. Adding insulation to the basement or crawlspace walls increases the thermal performance of the concrete foundation only for existing homes. This measure adds insulation to the existing R-2 level to bring the total insulation level to code (R-10).

Insulation—Floor. Adding insulation to the floor increases the overall resistance value, slowing heat transfer from basements and crawl spaces to upper levels. Table D-1.8 summarizes different resistance values compared in the measure.

Table D-1.8. Floor R-Value Comparison

Measure Insulation	Baseline Insulation
R-30 (Above KY Code)	R-1 (Existing Insulation)
R-30 (Above KY Code)	R-19 (KY Code)

⁵ <http://www.toolbase.org/Technology-Inventory/Roofs/green-roofs>

⁶ <http://cipco.apogee.net/res/reevhex.asp>



Insulation—Slab (New Construction). Substantial heat can be lost through an uninsulated slab, resulting in cold, uncomfortable floors. Even if foundation walls have been insulated vertically under the slab, significant heat escapes from the slab edge closest to the cold outside air. This measure compares a slab insulated with R-15 insulation to a slab insulated to code R-10.

Insulation—Wall. Wall insulation slows the transfer of heat, and reduces heating and cooling loads in houses. **Error! Reference source not found.** compares different insulation levels.

Table D-1.9. Wall Insulation Measures

Measure Insulation	Baseline Insulation
R-13 (KY Code—Maximum Insulation Feasible)	R-2 (Existing Insulation)
R-21 (Above KY Code- New Construction)	R-13 (KY Code)

Quality Installation—Air Conditioner and Heat Pump. Quality installation of an air conditioner and heat pump includes: proper sizing of equipment; and correct refrigerant charge and airflow. By properly sizing HVAC equipment rather than using “rules of thumb,” a system load tool, such as the Air Conditioning Contractors of America (ACCA) guidelines for sizing HVAC equipment (ACCA Manual J Residential Load Calculation), results in optimum equipment operating efficiency and better control.⁷

Thermostat—Programmable. A programmable thermostat controls set point temperatures automatically, ensuring HVAC systems do not run during low-occupancy hours.

Thermostat—Wi-Fi. Like a programmable thermostat, a Wi-Fi thermostat controls set point temperatures automatically, ensuring HVAC systems do not run during low-occupancy hours. In addition, the resident can interact through a web and phone app interface, allowing more flexibility to remotely override the programmed settings. The thermostat can learn the residents’ behaviors and adjust based on trends in override data.

Tune-up—Air Conditioner and Air Source Heat Pump. Proper system tune-up/maintenance ensures refrigerant charges and airflows through evaporator coils are properly tested and correctly adjusted — two factors affecting system efficiency. Maintenance includes changing filters and cleaning coils to maintain the overall performance and efficiency of units.

Whole-House Fan. Draws cool outdoor air inside through open windows, and exhausts hot indoor air through the attic to the outside. A whole house fan provides a simple and inexpensive method of cooling a house when outdoor temperatures fall below indoor temperatures.

⁷ <http://www.toolbase.org/Technology-Inventory/HVAC/hvac-sizing-practice>

Window Film. Solar control window films applied to existing windows reduce peak demand during hot months and conserve air conditioning energy. The use of these films also reduces exposure to ultraviolet radiation and glare.⁸

Window—Upgrade. This measure increases building performance by reducing U-values in existing and new construction windows, as shown in Table D-1.10.

Table D-1.10. High-Efficiency Window Measures

Measure Insulation	Baseline Insulation
U-value 0.30 Window (Above KY Code)	Existing Window—Single Pane
U-value 0.25 Window (Above KY Code)	Existing Window—Single Pane
U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)
U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)

Lighting

Photocell Daylighting Control—Interior/Exterior Lighting. Photocells adjust lighting levels according to daylight levels that rooms receive. The baseline is no daylighting controls.

Occupancy Sensors. In a space unoccupied for a designated amount of time, occupancy sensors turn off the lights, turning them on again once the sensor detects a person has entered the space.

Time Clocks (Exterior Lighting). Allows the user to program times to automatically turn outside lights on and off. Programmed exterior lighting saves energy by ensuring lights are not accidentally left on during the daytime.

Water Heat

Clothes Washer. ENERGY STAR and CEE-qualified clothes washers use less energy and water than regular washers.⁹ Table D-1.11 lists baseline and measure modified energy factor (MEF) and water factor (WF) levels considered. Note: each measure has multiple baselines, which change over time due to changes in federal standards.

Table D-1.11. Clothes Washer Modified Energy and Water Factor Comparisons

Measure Level	Efficiency (MEF & WF)
Federal Standard 2011 [Baseline]	MEF 1.48 and WF 9.5
Federal Standard 2016 [Baseline]	MEF 1.72 and WF 8.0
Federal Standard 2018 [Baseline]	MEF 2.0 and WF 6.0
ENERGY STAR	MEF 2.0 and WF 6.0
CEE Tier 2	MEF 2.2 and WF 4.5
CEE Tier 3	MEF 2.4 and WF 4.0

⁸ http://www.iwfa.com/iwfa/Consumer_Info/windowfilmbenefits.html

⁹ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW

Dishwasher. ENERGY STAR-qualified dishwashers use advanced technology to clean dishes, using less water and energy. As shown in Table D-1.12, two efficiency levels were compared for this measure.

Table D-1.12. Dishwasher Efficiency Levels

Measure Level	Measure kWh/yr & Gal/Cycle	Baseline kWh/yr & Gal/Cycle
ENERGY STAR	295 kWh/yr 4.25 Gal/Cycle	307 kWh/yr 5 Gal/Cycle
Enhanced Efficiency	250 kWh/yr 4.25 gal/cycle	307 kWh/yr 5 Gal/Cycle

Drain Water Heat Recovery. Also called gravity film heat exchanges, these devices, which recover heat energy from domestic drain water, are used to pre-heat cold water entering hot water tanks. This minimizes temperature differences between heating set points and entering water temperatures.

Faucet Aerators. Faucet aerators, by mixing water and air, reduce amounts of water flowing through faucets. The faucet aerator creates a fine water spray, using a screen inserted in the faucet head. Table D-1.13 presents the flow rate requirements for this measure.

Table D-1.13. Faucet Aerator Flow Rates

Measure Flow Rate (GPM*)	Baseline Flow Rate (GPM)
2.2 GPM	3.0 GPM (Existing)
1.5 GPM	2.2 GPM
0.5 GPM	2.2 GPM

* Gallons per minute.

Low-Flow Showerheads. Low-flow showerheads mix water and air to reduce amounts of water flowing through the showerhead, which creates a fine water spray through an inserted screen. This measure represents the various showerhead flow rate reduction levels shown in Table D-1.14.

Table D-1.14. Low-Flow Showerhead Water Flow Levels

Measure Flow Rate (GPM*)	Baseline Flow Rate (GPM)
2.5 GPM	3.0 GPM (Existing)
2.0 GPM	2.5 GPM
1.75 GPM	2.5 GPM
1.5 GPM	2.5 GPM

* Gallons per minute

Hot Water Pipe Insulation. The addition of R-4 insulation around pipes decreases heat loss. The baseline is a hot water pipe without insulation

Appliances

Freezer—Removal of Standalone. This refers to environmentally friendly disposal of unneeded and/or inefficient standalone freezers. Removal of standalone freezers eliminates the freezer's consumption. Proper disposal is required, as the units use hazardous materials, such as Freon and CFCs.

Refrigerator—Removal of Secondary. This refers to environmentally friendly disposal of unneeded and/or inefficient secondary refrigerators. The removal eliminates the refrigerator’s consumption. Proper disposal is required, as the unites use hazardous materials, such as Freon and CFCs.

Plug Load

Smart Strip. Energy-saving products, such as power strips with an occupancy sensor, are be placed in workstations where power strips are commonly used. Based on occupancy within the work area, the sensor turns on and off power to all devices, such as computers, desk lights, and audio equipment plugged into the power strip.

Other

Pool Pump Timers. A pool pump with a timer set to run during off-peak times (starting after 8:00 p.m. and cycling off before 10:00 a.m.) reduces energy costs. Cycling the pumps will further reduce monthly costs. The baseline is a continuously running pump.

2. Residential Electric Equipment Measure Descriptions

Heating and Cooling

Central Air Conditioners. This measure consists of several different air conditioner technology/efficiency levels, as summarized in Table D-1.15. The baseline size is the same as the measure size.

Table D-1.15. Central Air Conditioner Efficiency Comparison

Measure SEER/EER	Baseline SEER/EER
Federal Standard 2015—SEER/EER 14/12.2*	Federal Standard 2006 SEER/EER 13/11
ENERGY STAR—SEER/EER 14.5/12	
CEE Tier 3—SEER/EER 16/13	
Enhanced—SEER/EER 18/14	
Evaporative Cooler	

* Becomes baseline after 2015.

Ductless Air Conditioner (DAC). DACs use less energy than room air conditioners, while producing less noise and requiring no costly ductwork. DACs have a SEER/EER of 18/12.5, replacing a room air conditioner unit with a 9.7/9.8 SEER/EER.

Ductless Heat Pump (DHP). DHPs move heat to or from the air to cool and heat a home without the need for costly ductwork. This method of heating has a HSPF value of 10.0, consuming less energy than baseboard heating that has a 3.41 HSPF.

Electronically Commutated Motor (ECM)—Air Conditioner/Electric/Gas Furnace ECM Fan and Air Source Heat Pump. ECMs are smaller, variable-speed motors that operate from a single-phase power source, which consumes less power than standard motors in ventilation and circulation systems. The baseline measure is a standard-efficiency motor.

Heat Pump—Air or Ground Source (ASHP or GSHP). Electric heat pumps move heat to or from the air or ground to cool and heat homes. Table D-1.16 shows different efficiency levels compared in this measure. The baseline size is the same as the measure size.

Table D-1.16. Heat Pump SEER/HSPF Comparisons

Measure	Cooling SEER/EER	Heating HSPF	Baseline	Cooling SEER/EER	Heating HSPF
Federal Standard 2015*	14/12	8.2	Federal Standard 2006	13/11	7.7
ENERGY STAR	14.5/12	8.2			
CEE Tier 2	15/12.5	8.5			
Premium	16/13	9.0			
Enhanced	18/14	9.5			
ENERGY STAR Ground Source Heat Pump	NA/17.1	3.6 COP			

*Becomes the baseline after 2015.

Room Air Conditioner (Room AC)—(8,000-13,999 BTU/HR). ENERGY STAR-qualified room air conditioners use less energy than conventional models, through improved energy performance as well as timers for better temperature control. Table D-1.17 shows different efficiency tiers considered in this measure.

Table D-1.17. Room AC CEER/EER Comparisons

Measure CEER/EER	Baseline CEER/EER
Federal Standard 2015—CEER/EER 10.9/11*	Federal Standard 2001 CEER/EER 9.7/9.8
ENERGY STAR—CEER/EER 10.7/10.8	Federal Standard 2001 CEER/EER 9.7/9.8

*Becomes the baseline after 2015.

Lighting

General Service Lamp

Compact Fluorescent Light Bulbs (CFLs). Standard CFLs use less energy than the maximum mandated by the Energy Independence and Security Act of 2007 (EISA). This measure considers exterior and interior, standard, screw base lighting, and measure and baseline consumption is a weighted average of bulb wattages used in each condition. The baseline for this measure reflects changes over 2012–2014 to accommodate EISA.

Light Emitting Diodes (LEDs). LEDs are solid-state devices, converting electricity to light using very high efficiencies, requiring significantly less energy, and providing long lifetimes. This measure considers exterior and interior, standard, screw base lighting, and measure and baseline consumption is a weighted average of bulb wattages used in each condition. The baseline for this measure reflects changes over 2012–2014 to accommodate EISA.

Specialty Lamp

CFLs. Specialty CFLs use less energy than incandescent light bulbs. This measure considers interior specialty lighting, including the bulb types listed below, and the measure and baseline consumption is a weighted average of bulbs used in each condition. The baseline for this measure is an incandescent light bulb.

LEDs. LEDs are solid-state devices, converting electricity to light using very high efficiency, requiring significantly less energy, and providing long lifetimes. This measure considers interior specialty lighting, including the bulb types listed below, and measure and baseline consumption is a weighted average of bulbs used in each condition. The baseline for this measure is an incandescent light bulb.

- Specialty lamps include:
 - 3-Way
 - Dimmable
 - CC Candelabra—decorative
 - CC Candelabra—primary
 - Torpedo
 - Reflector
 - Globe
 - A-Lamp
 - Daylight
 - High Wattage
 - T2 Twist
 -

Water Heat

Solar Hot Water (SHW). Solar water heating systems include storage tanks and solar collectors, and operate using two types of solar water heating systems: active, which have circulating pumps and controls; and passive, which do not have pumps and controls. Either system actively increases the water temperature entering the storage tank, reducing the amount of energy required by the hot water heater to achieve the set point temperature.¹⁰ This measure applies to solar water heaters less than or equal to 55 gallons and is compared to a federal standard, 2004, storage water heater with a 0.92 EF.

Water Heater—Heat Pump. A heat pump moves heat from a warm reservoir (such as air), transferring this heat into hot water systems.¹¹ Table D-1.18 lists baseline and measure efficiencies.

¹⁰ http://www.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=12850

¹¹ Description source: U.S. Department of Energy;
http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12840

Measure Efficiency	Baseline Efficiency
Federal Standard 2015 > 55 GAL—EF 1.97*	Federal Standard 2004 Storage Water Heater > 55 GAL—EF 0.87
ENERGY STAR > 55 GAL—EF 2.2	
ENERGY STAR ≤ 55 GAL—EF 2.0	Federal Standard 2004 Storage Water Heater ≤ 55 GAL—EF 0.92

*Becomes baseline after 2015.

Water Heater—Storage. High-efficiency water heaters operate more efficiently than standard electric water heaters due to reduced standby losses. This measure assumes an energy factor (EF) for high-efficiency water heaters less than or equal to 55 gallons of 0.95 (Federal Standard, April 2015), an increase from a standard EF of 0.92 (Federal Standard, 2004).

Appliances

Cooking Oven. High-efficiency convection ovens operate at lower temperatures and achieve quicker cook times than standard ovens, due to fans circulating heat evenly throughout the oven. The baseline is a 2012, federal standard oven.

High Efficiency Dryer. High-efficiency dryers have features, such as moisture sensors, that minimize energy usage while retaining performance. The efficiency levels for this measure are shown in Table D-1.19.

Table D-1.19. Dryer EF Comparison

Measure	Baseline
Federal Standard 2015 Dryer—CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor—CEF/EF 3.14/3.19
Enhanced Efficiency Dryer—CEF/EF 3.79/3.9	

Dehumidifier—ENERGY STAR. ENERGY STAR-qualified models use more efficient refrigeration coils, compressors, and fans than conventional models, thus using less energy to remove moisture. These qualified models remove the same amount of moisture as a similarly-sized standard unit, but use 10% to 20% less energy. The baseline for this measure is a 2013 federal standard dehumidifier.¹²

Freezer. ENERGY STAR-qualified freezers use at least 10% less energy than standard models due to improvements in insulation and compressors. This measure considers the change in 2015 federal standard efficiency, as shown in Table D-1.20.

Table D-1.20. Freezer Measure Levels

Measure Level	Baseline Level
Federal Standard 2015*	Federal Standard 2001
ENERGY STAR	

*Becomes baseline after 2015.

¹² http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=DE

Microwave—High-Efficiency. High-efficiency microwaves, with more efficient power supplies, fans, magnetrons, and reflective surfaces, provide energy savings in comparison with conventional microwaves.

Refrigerator. ENERGY STAR and CEE-qualified refrigerators use at least 20% less energy than standard models due to improvements in insulation and compressors. This measure considers the change in 2015 federal standard efficiency and two CEE tiers above ENERGY STAR, as shown in Table D-1.21.

Table D-1.21. Refrigerator Measure Levels

Measure Level	Baseline Level
Federal Standard 2015*	Federal Standard 2001
ENERGY STAR	
CEE Tier 2	
CEE Tier 3	

*Becomes baseline after 2015.

Plug Load

Computer—ENERGY STAR. ENERGY STAR computers consume less than 2 watts in “sleep” and “off” modes, and are more efficient than conventional units in “idle” modes, resulting in 30% to 65% energy savings.

DVD Player—ENERGY STAR. ENERGY STAR-qualified DVD products meeting the new requirements use up to 60% less energy than standard models.¹³ ENERGY STAR DVD players use only 1 watt, as little as one-fourth of the energy used by standard models, in “off” or “sleep” modes. The baseline for this measure is a standard DVD player.

Home Audio System—ENERGY STAR. According to ENERGY STAR specifications, qualified audio systems must have: default power down timing; 1 watt sleep/off mode consumption; and 55% efficiency for amplifiers greater than 20 watts input power.¹⁴

Monitors—ENERGY STAR. ENERGY STAR monitors feature: (1) an “on” mode, where the maximum allowed power varies, based on the computer monitor’s resolution; (2) a “sleep” mode, where computer monitor models must consume 2 watts or less; and (3) an “off” mode, where computer monitor models must consume 1 watt or less. The baseline equipment does not include these features.¹⁵

Office Multifunction Device—ENERGY STAR. ENERGY STAR models meeting the most recent ENERGY STAR requirements are 40% more energy efficient, and feature efficient designs, helping the equipment run cooler and last longer.

¹³ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=DP

¹⁴ http://www.energystar.gov/index.cfm?c=audio_dvd.pr_crit_audio_dvd

¹⁵ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.ShowProductGroup&pgw_code=MO

Office Copier—ENERGY STAR. ENERGY STAR copiers deliver the same performance as conventional equipment and are, on average, 27% more efficient, and power down when not in use. The baseline measure is a non-ENERGY STAR copier.¹⁶

Office Printers—ENERGY STAR fax machines enter sleep mode after inactivity. This reduces their total power consumption by 50%.¹⁷

Set Top Box—ENERGY STAR. Set-top boxes earning the ENERGY STAR label operate at least 40% more efficiently than conventional models.¹⁸ The baseline measure is a standard receiver.

TV—ENERGY STAR. ENERGY STAR-qualified TVs use about 40% less energy than standard units.¹⁹ ENERGY STAR models must consume no more than 1 watt while in sleep mode. The baseline is a standard television, generally consuming more than 3 watts when off.

Other

Pool Pumps—Two-Speed Motor. This enables pool pump motors to run at high and low speeds, rather than constantly running at full power. The baseline for this measure is a standard, one-speed motor.

Pool Pumps—VSD. This enables pool pump motors to run at variable speeds, as opposed to constantly running at full power. The baseline for this measure is a standard, one-speed motor.

3. Residential Natural Gas Retrofit Measure Descriptions

Heating

Boiler Controls. Boiler controls reduce energy used by residential boilers by controlling supply water temperatures, optimizing firing cycles, and applying zone controls.

Boiler Pipe Insulation. Applying 10 linear feet of R-6 thermal insulation to pipes transporting hot water from the boiler reduces heat loss and increases boiler efficiency.

Construction—ICF. Building a concrete home with ICFs saves energy. The greater insulation, tighter construction, and temperature-moderating mass of the walls conserve heating and cooling energy much more effectively than conventional wood-frame walls.

Construction—SIP. SIPs use continuous foam insulation throughout the panel, providing excellent energy efficiency and low air infiltration levels. The baseline is standard wood framing.

¹⁶ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CP

¹⁷ http://www.energystar.gov/ia/products/fap/IE_Prog_Req.pdf

¹⁸ http://www.energystar.gov/index.cfm?c=settop_boxes.settop_boxes

¹⁹ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=TV

Doors. Composite or steel doors with a foam core increase overall insulation, slowing heat loss. This measure includes adding a thermal door with a resistance value of R-5 or R-11 to houses without a thermal or storm door (R-2.9, KY code).

Duct Sealing and Insulation. Duct sealing and insulation cost-effectively save energy, improve air and thermal distribution (comfort and ventilation), and reduce cross-contamination between different zones in buildings (e.g., smoking vs. non-smoking, bio-aerosols, localized indoor air pollutants). This measure assumes a baseline of existing duct conditions sealed and insulated to R-8.

Green Roof. The added mass and thermal resistance of green roofs reduce building heating and cooling loads. These systems reduce ambient temperatures around a roof, decreasing a building’s urban heat island effect, reducing the ambient temperature of the roof’s surface, and slowing the transfer of heat into the building, thus lowering cooling costs. They also provide added insulation to the roof structure, reducing heating requirements in winter.²⁰

Heat Exchangers Air-to-Air. An air-to-air heat exchanger mechanically ventilates homes in colder climates. During winter, it transfers heat from exhausted air to fresh, outside air entering the home. Fifty percent to 80% of the heat normally lost in exhausted air returns to the house. Air-to-air heat exchangers can be installed as part of a central heating and cooling system, or in walls or windows. Wall and window-mounted units resemble air conditioners, and ventilate one room or an area.²¹

Infiltration Control—Reduction of Existing Conditions. Sealing air leaks in windows, doors, a roof, crawlspaces, and outside walls prevents drafts and reduces overall heating and cooling losses.

Infiltration Control—Reduction of New Thermal Shell. HRV provides fresh air and improved climate control, while also saving energy by reducing the heating (or cooling) requirements of a building. Combining this feature with better infiltration control (0.2 air changes per hour) minimizes the energy needed to maintain a healthy level of fresh air and reduces heat loss due to air leakage.

Insulation—Attic/Ceiling. This measure represents an increase in R-value. Adding insulation in existing buildings increases thermal performance, and brings the resistance value up to and past code, depending on the vintage. Table D-1.22 summarizes different resistance values compared in the measure.

Table D-1.22. Ceiling R-Value Comparison

Measure Insulation	Baseline Insulation
R-49 (KY Code)	R-15 (Existing Insulation)
R-49 (Above KY Code)	R-38 (KY Code)

²⁰ <http://www.toolbase.org/Technology-Inventory/Roofs/green-roofs>

²¹ <http://cipco.apogee.net/res/reevhex.asp>

Insulation—Basement Wall. Adding insulation to basement or crawlspace walls increases the thermal performance of the concrete foundation (only for existing homes). This measure adds insulation to the existing R-2 level to bring the total insulation level to code (R-10).

Insulation—Floor. Adding insulation to the floor increases the overall resistance value, slowing heat transfer from basements and crawl spaces to upper levels. Table D-1.23 summarizes different resistance values compared in the measure.

Table D-1.23. Floor R-Value Comparison

Measure Insulation	Baseline Insulation
R-30 (Above KY Code)	R-1 (Existing Insulation)
R-30 (Above KY Code)	R-19 (KY Code)

Insulation—Slab (New Construction). Substantial heat can be lost through an uninsulated slab, resulting in cold, uncomfortable floors. Even if foundation walls have been insulated vertically under the slab, significant heat escapes from the slab edge closest to the cold outside air. This measure compares a slab insulated with R-15 insulation to a slab insulated to code R-10.

Insulation—Wall. Wall insulation slows the transfer of heat, and reduces heating and cooling loads in houses. Table D-1.24 compares different insulation levels.

Table D-1.24. Wall Insulation Measures

Measure Insulation	Baseline Insulation
R-13 (KY Code—Maximum Insulation Feasible)	R-2 (Existing Insulation)
R-21 (Above KY Code- New Construction)	R-13 (KY Code)

Integrated Space Heating/Water Heating. These systems provide space conditioning and hot water heating in one appliance/energy source. Domestic hot water is heated directly, and space is heated by a hot water heat exchanger coil, piped to the forced air heating system. This combination space/water heating system provides high-efficiency heating for the cost of one high-efficiency appliance.

Thermostat—Programmable. A programmable thermostat controls set point temperatures automatically, ensuring HVAC systems do not run during low-occupancy hours.

Quality Installation—Furnace and Boiler. Quality installation of furnaces and boilers includes: proper sizing of equipment and ducts; proper airflow; and proper control settings resulting in optimum equipment operating efficiency and better control.²²

Thermostat—Programmable. A programmable thermostat controls set point temperatures automatically, ensuring HVAC systems do not run during low-occupancy hours.

²² <http://www.toolbase.org/Technology-Inventory/HVAC/hvac-sizing-practice>

Thermostat—Wi-Fi. Like a programmable thermostat, a Wi-Fi thermostat controls set point temperatures automatically, ensuring HVAC systems do not run during low-occupancy hours. In addition, the resident can interact through a web and phone app interface, allowing more flexibility to remotely override the programmed settings. The thermostat can learn the residents’ behaviors, and adjust based on trends in override data.

Tune-up—Furnace and Boiler. This measure involves a technician completing the following: measure combustion efficiency; adjusting air fuel mixtures; cleaning heat exchanger tubes; adjusting draft controls; cleaning burners; cleaning burner nozzles; and checking for venting, increasing the efficiency of the heating system.

Whole-House Fan. These fans draw cool outdoor air inside through open windows, and exhausts hot indoor air through the attic to the outside. A whole-house fan provides a simple and inexpensive method of cooling a house when outdoor temperatures fall below indoor temperatures.

Window—Upgrade. This measure increases building performance by reducing U-values in existing and new construction windows, as shown in Table D-1.25.

Table D-1.25. High-Efficiency Window Measures

Measure Insulation	Baseline Insulation
U-value 0.30 Window (Above KY Code)	Existing Window—Single Pane
U-value 0.25 Window (Above KY Code)	Existing Window—Single Pane
U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)
U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)

Water Heat

Clothes Washer. ENERGY STAR and CEE-qualified clothes washers use less energy and water than regular washers.²³ Table D-1.26 lists baseline and measure MEF and WF levels considered. Note: each measure has multiple baselines, which change over time due to changes in the federal standard.

Table D-1.26. Clothes Washer Modified Energy and Water Factor Comparisons

Measure Level	Efficiency (MEF & WF)
Federal Standard 2011 [Baseline]	MEF 1.48 and WF 9.5
Federal Standard 2016 [Baseline]	MEF 1.72 and WF 8.0
Federal Standard 2018 [Baseline]	MEF 2.0 and WF 6.0
ENERGY STAR	MEF 2.0 and WF 6.0
CEE Tier 2	MEF 2.2 and WF 4.5
CEE Tier 3	MEF 2.4 and WF 4.0

Dishwasher. ENERGY STAR-qualified dishwashers use advanced technology to clean dishes, using less water and energy. As shown in Table D-1.27, two efficiency levels were compared for this measure.

²³ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW

Table D-1.27. Dishwasher Efficiency Levels

Measure Level	Measure kWh/yr & Gal/Cycle	Baseline kWh/yr & Gal/Cycle
ENERGY STAR	295 kWh/yr 4.25 Gal/Cycle	307 kWh/yr 5 Gal/Cycle
Enhanced Efficiency	250 kWh/yr 4.25 gal/cycle	307 kWh/yr 5 Gal/Cycle

Drain Water Heat Recovery. Also called gravity film heat exchanges, this device recovers heat energy from domestic drain water, which is then used to pre-heat cold water entering the hot water tank. This minimizes the temperature difference between the heating set point and the temperature of water entering the system.

Pipe Insulation-Water Heater. The addition of R-4 insulation around pipes decreases heat loss. The baseline is a hot water pipe without insulation.

Faucet Aerators. Faucet aerators, by mixing water and air, reduce amounts of water flowing through faucets. The faucet aerator creates a fine water spray, using a screen inserted in the faucet head. Table D-1.28 presents flow rate requirements for this measure.

Table D-1.28. Faucet Aerator Flow Rates

Measure Flow Rate (GPM*)	Baseline Flow Rate (GPM)
2.2 GPM	3.0 GPM (Existing)
1.5 GPM	2.2 GPM
0.5 GPM	2.2 GPM

*Gallons per minute.

Low-Flow Showerheads. Low-flow showerheads mix water and air to reduce amounts of water flowing through the showerhead, which creates a fine water spray through an inserted screen. This measure represents the various showerhead flow rate reduction levels, as shown in Table D-1.29.

Table D-1.29. Low-Flow Showerhead Water Flow Levels

Measure Flow Rate (GPM*)	Baseline Flow Rate (GPM)
2.5 GPM	3.0 GPM (Existing)
2.0 GPM	2.5 GPM

* Gallons per minute

Other

Pool Covers. This measure reduces evaporation, which is the largest source of pool/spa energy loss. It takes one British thermal unit (Btu) to raise 1 pound of water by 1 degree. Each pound of 80° F water that evaporates takes 1,048 Btus of heat out of the pool.²⁴ The baseline measure is an uncovered pool or spa.

²⁴ http://www.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13140

4. Residential Natural Gas Equipment Measure Descriptions

Heating

Gas Boiler. Boilers are classified as condensing or non-condensing. Condensing boilers condense flue gas and water vapor, extracting useful heat and improving the boiler efficiency. This measure compares several boilers with different thermal efficiencies and is applicable to both new and existing construction. The overall efficiency of the boiler is defined as the gross energy output, divided by the energy input, and is affected by combustion efficiency, standby losses, cycling losses, and heat transfer. Table D-1.30 displays the measure and baseline thermal efficiencies.

Table D-1.30. Gas Boiler Efficiency Comparison

Measure	Baseline
High-efficiency Boiler—90% AFUE	Federal Standard 2012 Boiler—82% AFUE
Premium Efficiency Boiler—94% AFUE	
Advanced Efficiency Boiler—98% AFUE	

Gas Furnace. Improvements in furnace technology, such as new ignition and heat exchange designs, have led to increased furnace efficiency. AFUE levels considered in this measure are shown in Table D-1.31.

Table D-1.31. Gas Furnace Efficiency Comparison

Measure	Baseline
ENERGY STAR Furnace—90% AFUE	Federal Standard 1992 Furnace—78% AFUE
High-efficiency Furnace—94% AFUE	
Premium Efficiency Furnace—98% AFUE	

Water Heat

Water Heater, Condensing. Gas condensing water heaters have an improved design that reduces consumption by 30% while maintaining superior performance. EFs considered in this measure are shown in Table D-1.32.

Table D-1.32. Water Heater EF Comparison

Measure	Baseline
Federal Standard 2015 Condensing Water Heater > 55 GAL—EF 0.74	Federal Standard 2004 Storage Water Heater > 55 GAL—EF 0.53
Condensing Water Heater > 55 GAL—EF 0.85	
Condensing Water Heater ≤ 55 GAL—EF 0.90	Federal Standard 2004 Storage Water Heater ≤ 55 GAL—EF 0.59

Water Heater, Storage. A high-efficiency water heater reduces standby loss and is more efficient than a standard gas water heater. The EFs considered in this measure are shown in Table D-1.33.

Table D-1.33. Water Heater EF Comparison

Measure	Baseline
ENERGY STAR Storage Water Heater > 55 GAL—EF 0.67	Federal Standard 2004 Storage Water Heater > 55 GAL—EF 0.53
Federal Standard 2015 Storage Water Heater ≤ 55 GAL—EF 0.62	Federal Standard 2004 Storage Water Heater ≤ 55 GAL—EF 0.59
ENERGY STAR Storage Water Heater ≤ 55 GAL—EF 0.67	

Water Heater, Tankless. Tankless water heaters provide hot water at a preset temperature when needed and without storage, thereby reducing or eliminating standby losses. An EF of 0.82 was used for the tankless system and compared to a standard water heater with an EF of 0.59.

Appliances

Cooking Oven, High Efficiency. A high-efficiency convection oven operates at lower temperatures and achieves quicker cooking times than a standard oven, due to fans circulating heat evenly throughout the oven by moving hot air past the food. The baseline is a standard oven.

High Efficiency Dryer. High-efficiency dryers have features, such as moisture sensors, that minimize energy usage while retaining performance. The efficiency levels for this measure are shown in Table D-1.34.

Table D-1.34. Dryer EF Comparison

Measure	Baseline
Federal Standard 2015 Dryer—CEF/EF 3.30/3.38	Standard Dryer with Controls and Moisture Sensor—CEF/EF 2.70/2.74
Enhanced Efficiency Dryer—CEF/EF 3.54/3.63	

Other (Pool)

Energy Efficiency Pool Heater. Gas pool heaters use natural gas or propane. As the pump circulates the pool's water, the water passes through a filter and then to the heater. Gas burns in the heater's combustion chamber, generating the heat that warms the water returning to the pool. This measure assumes an efficiency level of 88%, compared to a standard 83% efficient pool heater.

5. Commercial Electric Retrofit Measure Descriptions

Heating and Cooling

Automated Exhaust VFD Control, Parking Garage CO₂ Sensor. This measure allows the ventilation system to run only when CO levels rise above a specified level. The ventilation system would run constantly without this measure.

Automated Ventilation (VFD) Control (Occupancy Sensors/CO₂ sensors). This measure is also known as demand-control ventilation (DCV), where the ventilation system automatically adjusts air flow when CO₂ rises above a specified level. CO₂ controls maintain a minimum ventilation rate at all times to control non-occupant contaminants, such as off-gassing from furniture, equipment, and building components. The baseline of this measure is a ventilation system that runs constantly.

Chilled Water Piping Loop with (VSD) Control. A VSD controller, with two-way valves at the cooling coils, controls the chilled water pump speed to vary, based on the cooling load, thus reducing pumping energy requirements. The baseline is a constant speed pump with three-way valves.

Chilled Water Reset. A water reset controller varies the temperature of chilled water in a loop, allowing increased water temperatures as cooling requirements decrease. The baseline measure is no water reset.

Chilled Water-Side Economizer. This measure consists of a heat exchanger attached to a condenser water piping loop, which operates when outdoor conditions produce colder condenser water than the mixed air temperature. A water-side economizer is used when an outdoor-air economizer is not practical. The baseline measure is no economizer.

Chiller, Pipe Insulation. Adding insulation to water pipes yields an approximate R-value of R-4 per inch, which decreases temperature losses, thereby reducing demand on chilled water systems.

Commissioning. Commissioning ensures installed energy-using systems operate in an optimal fashion to maximize energy efficiency. The baseline measure is no commissioning.

Convert Constant Volume Air System to VAV. The VAV allows the airflow volume of a HVAC system to vary heating or cooling loads rather than over-conditioning and short-cycling. The baseline in this case is a constant volume system.

Cool Roofs. ENERGY STAR[®]-qualified cool roofs can lower roof surface temperatures up to 100°F, thereby decreasing amounts of heat transferred into a building. Cool roofs can help reduce amounts of air conditioning needed in buildings, and can reduce peak cooling demand by 10%–15%. This measure could be considered a passive measure.

Cooling Tower—Decrease Approach Temperature. An oversized cooling tower allows a reduced approach temperature, which saves energy. The approach temperature is the difference between the

tower water leaving and the wet-bulb temperature. This measure assumes a 6-degree delta, compared to the baseline of a 10-degree temperature delta.

Cooling Tower-Two-Speed Fan Motor. A two-speed fan cycles between off, low, and high speeds to maintain the tower set point. The low-speed setting option uses less energy than a single, high-speed fan. The baseline measure is a single-speed fan motor.

Cooling Tower—VSD Fan Control. A VSD is one-step more sophisticated than a two-speed fan motor. A VSD drive modulates the air flow; so heat rejection exactly matches the load at the desired set point. The baseline measure is a two-speed fan motor.

DX Package-Air Side Economizer. An air-side economizer uses already cooled air (return air), mixed with a proportion of outside air to cool indoor spaces. Using the return air results in energy savings, as less air must be cooled.

Demand Controlled Circulating Systems. A demand-controlled circulating system only circulates hot water when required. The baseline measure is a continuously circulating hot water system, resulting in energy loss through pipes.

Direct Digital Control (DDC) System-Installation. DDC systems allow both HVAC and lighting to be controlled and monitored. For lighting, the DDC system allows direct control of lights from a remote location. Entire HVAC systems, including pumps, motors, fans, and set points, can be digitally programmed for tighter control of the system.

Duct Repair and Sealing. The repair and sealing of leaky ducts creates significant energy savings by ensuring conditioned air only goes to occupied spaces, thereby reducing excessive runtimes/loads on HVAC systems.

Exhaust Air to Ventilation Air Heat Recovery. Captures air exhausted out of a building during the heating season, when it would be warmer than the air outside. Transferring this heat to incoming air lowers overall heating loads.

Exhaust Hood Makeup Air. Provides exhaust air at the hood instead of allowing the hood to exhaust conditioned air in the room. The baseline measure is conditioned air expelled through exhaust hoods.

Green Roof. A green roof is a living roof, supporting soil and plant growth. A series of carefully engineered layers, applied to the roof deck, are watertight, lightweight, and long lasting. Green roofs can be incorporated into new buildings as long as load requirements can be met. They are suited for roofs with slopes ranging up to 20°, and are most successful when sufficient attention has been paid to selecting plants that thrive in local climates and conditions. One of the most significant advantages green roofs offer is that they can last up to three times longer than a standard roof. A green roof can also buffer temperature extremes, improving a building's energy performance by dropping the temperatures on the roof.

Hotel Key Card Room Energy Control System. This key card system controls room HVAC and lighting during non-occupied periods. Occupancy is determined by presence of a key card and/or additional sensors. The central system sets heating and cooling to a minimum, and turns off lighting when the key card is removed. Once a guest returns and inserts the key card, they can fully control of the room systems.

Infiltration Reduction. Sealing air leaks in windows, doors, roof, crawlspaces, and outside walls decreases overall heating and cooling losses. The baseline measure is 1.00 Air Changes per Hour (ACH), while the measure value is 0.65 ACH.

Insulation—Ceiling. These measures represent an increase in R-value from existing building conditions to current state code, and from current state code to better than code R-value improvements. Table D-1.7 presents the baseline and measure values.

Table D-2.35. Ceiling Insulation Measures

Measure	Baseline
R-20ci (KY State Code)	Average Existing Conditions
R-30	R-20ci (KY State Code)

Insulation—Duct. Packaged DX and heat-pump equipment generally are coupled with a ducting system inside a building. Insulating ducts reduces energy loss in unoccupied plenum space. Table D-2.36 presents the baseline and measure values.

Table D-2.36. Duct Insulation Measures

Measure	Baseline
R-5 (KY State Code)	Average Existing Conditions
R-8	R-5 (KY State Code)

Insulation—Floor (Non-slab). These measures represent an R-value increase from existing building conditions to current state code, and from current state code to better than code R-value improvements for the floor space (non-slab). Table D-2.37 presents the baseline and measure values.

Table D-2.37. Floor Insulation Measures

Measure	Baseline
R-30 (KY State Code)	Average Existing Conditions
R-38	R-30 (KY State Code)

Insulation—Wall. These measures represent an increase in the R-value to current state code values or better. Table D-2.38 presents the baseline and measure values.

Table D-2.38. Wall Insulation Measures

Measure	Baseline
---------	----------

R-13 + 7.5 (KY State Code)	Average Existing Conditions
R-13 + 10	R-13 + 7.5 (KY State Code)

Re-Commissioning. The commissioning process can be applied to existing buildings to restore them to optimal performance. Retrocommissioning is a systematic, documented process, identifying low-cost operational and maintenance improvements in existing buildings, and bringing the buildings up to the design intentions of its current operation.^{25,26} The baseline measure is no commissioning.

Tune-up—Chiller Maintenance. Proper system tune-up/maintenance ensures correct water system flow rates, temperatures of heating and cooling delivery systems (air side and water side), positions and functioning of flow control devices for air and water delivery systems, control settings and operation, and pump speeds and pressures. The baseline is an unmaintained chiller.

Tune-up—Air Conditioner, Air Source, and Ground Source Heat Pumps. Proper system tune-up/maintenance ensures refrigerant charges and airflows through evaporator coils have been properly tested and correctly adjusted—two factors affecting system efficiency. Maintenance includes changing filters and cleaning coils to maintain overall performance and efficiency of the unit.

Window Film. Solar control window films, applied to existing windows, reduce peak demand during hot months, and conserve energy when air conditioning might be required. In addition to energy-management benefits, use of these films reduces exposure to ultraviolet radiation and glare.²⁷

Windows—High Efficiency. This measure represents an increase in building performance by reducing the U-value in existing construction and new construction windows, as shown in Table D-2.39.

Table D-2.39. High-Efficiency Window Measures

Measure U-Value	Baseline U-Value
U-0.40 (KY State Code)	Average Existing Condition
U-0.32	U-0.40 (KY State Code)

Lighting

Bi-Level Control, Stairwell Lighting. This measure allows an occupancy sensor to reduce the light load in an unoccupied stairwell by 50% for a set period of time. The baseline is continuous operation at full power.

Daylighting Controls, Outdoors (Photocell). Exterior lighting controls via photocell turn on and off exterior light fixtures when sunlight levels reach desired set points. The measure achieves savings over

²⁵ <http://www.green.ca.gov/CommissioningGuidelines/default.htm>

²⁶ <http://cbs.lbl.gov/BPA/cct.html>

²⁷ http://www.iwfa.com/iwfa/Consumer_Info/windowfilmbenefits.html

time-clock or manual controls through changes in seasonal and site conditions by improving nighttime durations.

Dimming—Continuous, Fluorescent Fixtures. A dimming switch allows light levels to vary from 0%–100% brightness. A continuously dimming switch permits variations throughout the range, increasing electricity savings. The baseline measure is operating fluorescent fixtures at full power.

Dimming—Stepped, Fluorescent Fixtures. The fixtures allow the user to vary light levels by a number of specified tiers to adjust for amounts of outside daylight. Operating fluorescent fixtures at full power represents the baseline measure.

Display Case LEDs. LEDs are highly efficient bulbs that can be used for refrigeration case lights, resulting in energy savings over a standard fluorescent case light. This measure applies specifically to closed cases.

Display Case LEDs (Open Cases). LEDs can be used for refrigeration case lights, resulting in energy savings over a standard fluorescent case light. This measure applies specifically to open cases.

Exit Sign—LED. LED exit signs use only 6 watts of power and last over 50,000 hours, while CFL exit signs use 26 watts of power and have a shorter life.

Exit Sign—Photoluminescent or Tritium. Photoluminescent or tritium signs use little to no energy (a maximum of 2 watts), while providing bright lighting suitable for exit signage. This measure's low-energy consumption can provide savings, compared to the 6 watts consumed by LED signs.

Exterior Building Lighting. An exterior lighting package results in a 30% decrease in lighting power density. The baseline lighting technology is representative of all available technologies making up total watts per square foot.

Occupancy Sensor Control. These units turn off lighting in areas where activity is not detected. Occupancy sensors can control single or multiple lighting zones. Controlled lighting wattage varies, depending on applications. The baseline assumes no lighting controls.

Parking—Covered Lighting. Replacing inefficient metal halide lamps with LEDs and high-pressure sodium lamps with LED Low Bay lighting, reduces energy use of covered parking garages.

Parking—Surface Lighting. By replacing inefficient metal halide lamps with LED lighting, the energy use of surface parking lots can be reduced.

Time Clock. The units include an integrated time-clock, which automatically switches lighting and other loads on and off on a time schedule, or in response to an occupancy sensor or building automation system.

Refrigeration

Anti-Sweat (Humidistat) Controls. This measure enables the user to turn refrigeration display case anti-sweat heaters off when the ambient relative humidity is low enough to prevent sweating. Without controls, heaters generally run continuously.

Case Electronically Commutated Motor. A case fan is one component of a refrigeration system. ECMs are smaller variable speed motors that operate from a single -phase power source with an electronic controller in or on the motor. The baseline measure is a standard-efficiency motor.

Case Replacement, Low and Medium Temperatures. Efficient refrigerated display cases achieve higher performance efficiency and reduce overall energy consumption by incorporating high-performance evaporative fans (such as ECMs), energy-efficient double-pane glass doors, anti-sweat controls, high-efficiency lighting and ballasts, such as T8 or LED lamps, and improved insulation.

Commercial Refrigerator—Semivertical and Vertical—No Doors—Med Temp. This measure represents an efficient open (no doors), refrigerated, medium-temperature case, including a high-efficiency cooling unit and an optimum design to minimize energy consumption. The baseline assumes a standard-efficiency unit.

Compressor VSD Retrofit. Modulates motor speeds in response to changes in load. When low-load conditions exist, the current to the compressor motor decreases, slowing the compressor motor. The baseline is a constant-speed compressor.

Demand Control Defrost—Hot Gas. When frost collects on the evaporator, it reduces coil capacity by acting as a layer of insulation, reducing airflow between the fins. In hot gas defrost, refrigerant vapor from the compressor discharge or the high-pressure receiver warms the evaporator coil, melting frost collected there.²⁸

Display Case Motion Sensors. Savings result from a direct reduction in lighting runtimes, and a reduced cooling load from addition of display case motion sensors.²⁹

Evaporator Fan Controller. This measure adds a controller to walk-in cooler and freezer evaporator fan motors. The evaporator fan motor type is an ECM. The controller cycles motors between high and low speeds (two-speed) or on/off, when there is no call for cooling.³⁰

Floating Condenser Head Pressure Controls. This measure adds controls to float head pressures down to lower temperatures during periods of low load. The base case is a standard multiplex system, with a fixed condensing set point.

²⁸ Parker Refrigeration Specialists.

²⁹ http://www.nwcouncil.org/energy/rtf/measures/com/ComGroceryDisplayCaseLEDs_v2_1.xlsm

³⁰ http://www.nwcouncil.org/energy/rtf/measures/com/GroceryEvapFanControllerECMWalkIn_v1.xls

Glass Door ENERGY STAR Refrigerators/Freezers. “Low-E” double-pane thermal glass doors reduce cooling losses in refrigerated, reach-in cases.

Night Covers for Display Cases. Night covers help eliminate wasted refrigeration cooling by insulating display cases. In addition, they reduce heating loads of buildings through less escaped refrigerated air that must be reheated.

Refrigeration Commissioning or Recommissioning. Commissioning ensures refrigeration systems installed operate in an optimal fashion to maximize energy efficiency. Retrocommissioning checks previously commissioned equipment to ensure it continues to run efficiently. The baseline measure is no commissioning.³¹

Solid Door ENERGY STAR Refrigerators/Freezers. ENERGY STAR-labeled, commercial, solid-door refrigerators and freezers are designed with high-efficiency components, such as: ECM evaporators and condenser fan motors; hot gas, anti-sweat heaters; or high-efficiency compressors. Compared to standard models, ENERGY STAR-labeled, commercial, solid-door refrigerators and freezers save energy.³²

Strip Curtains for Walk-Ins. Strip curtains on walk-in refrigerators reduce infiltration of warm air into refrigerated spaces by improving barriers between cold spaces and ambient air.

Walk-In Electronically Commutated Motor. The walk-in fan is a refrigeration system component. ECMs are smaller, variable-speed motors, operating from a single-phase power source, with an electronic controller mounted in or on the motor. The baseline measure is a standard efficiency motor.

Water Heating

Clothes Washer Commercial, ENERGY STAR. This measure has more capacity than conventional top-load models with an agitator. Some front-loaders can wash over 20 pounds of laundry at once, compared to 10–15 pounds for a standard top-loader.³³ ENERGY STAR clothes washers have an MEF/WF of 2.43/4.0, compared to commercial 2013 federal standard clothes washers with a 1.6/8.5 MEF/WF.

Clothes Washer Residential, ENERGY STAR. ENERGY STAR-qualified residential clothes washers use less energy and water than regular washers.³⁴ ENERGY STAR residential clothes washers have an MEF/WF of 2.0/6.0, compared to residential 2011 federal standard clothes washers with a 1.26/9.0 MEF/WF.

Dishwasher Residential. Residential-sized ENERGY STAR dishwashing systems often are more appropriate for smaller commercial buildings. ENERGY STAR residential dishwashers have a maximum

³¹ <http://cbs.lbl.gov/BPA/cct.html>

³² ENERGY STAR;
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CRF

³³ http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers_comm

³⁴ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW

consumption of 295 kWh/yr and a maximum water usage of 4.25 gal/cycle, compared to residential 2010 federal standard dishwashers with a maximum consumption of 355 kWh/yr and maximum water usage of 6.5 gal/cycle.

Dishwashing—Commercial—High Temp. ENERGY STAR high-temperature commercial dishwashers have a minimal idle rate as well as a minimal amount of water consumption per rack of loaded dishes, depending on size, and are more efficient than standard, high-temperature, commercial dishwashers.³⁵

Dishwashing—Commercial—Low Temp. ENERGY STAR low-temperature commercial dishwashers use chemicals, combined with low temperatures, to save energy when compared to standard, high-temperature, commercial dishwashers.

Domestic Hot Water Pipe Insulation. One inch of R-4 insulation, added around hot water pipes, decreases heat loss. This measure only applies for existing construction and SWH. The baseline measure is no insulation.

Drainwater Heat Recovery Water Heater. Drain water heat recovery devices recover heat energy from drain water, and use that heat to preheat cold water entering the hot water tank, minimizing the temperature rise required to achieve the set point on the water heater.³⁶

Low-Flow Faucet Aerators. Faucet aerators, mixing water and air, reduce amounts of water flowing through the faucet, creating a fine water spray through an inserted screen in the faucet head. Table D-2.40 shows flow-rate requirements for this measure.

³⁵ ENERGY STAR;
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=COH

³⁶ www.toolbase.org/TechInventory/TechDetails.aspx?ContentDetailID=858&BucketID=6&CategoryID=9

Table D-2.40. Low-Flow Faucet Aerator Flow Rates

Measure Flow Rate (GPM)	Baseline Flow Rate (GPM)
2.2 (Federal Code)	2.5
1.5	2.2 (Federal Code)
0.5	2.2 (Federal Code)

Low-Flow Pre-Rinse Spray Valves. Low-flow spray valves mix water and air to reduce amounts of water flowing through the spray head, which creates a fine water spray through an inserted screen in the spray head. This achieves a flow reduction of 37.5%, from a flow rate of 1.6 GPM (code) to 1.0 GPM.

Low-Flow Showerheads. Low-flow showerheads mix water and air to reduce amounts of water flowing through the showerhead. The showerhead creates a fine water spray using an inserted screen in the showerhead. Table D-2.41 shows flow-rate requirements for this measure.

Table D-2.41. Low-Flow Showerhead Flow Rates

Measure Flow Rate (GPM)	Baseline Flow Rate (GPM)
2.5 (Federal Code)	3.0
1.5	2.5 (Federal Code)

Ultrasonic Faucet Control. Ultrasonic sensors automatically turn faucet water on and off when motion is detected at the sink, eliminating water running continuously while washing hands.

Water Cooled Refrigeration with Heat Recovery. Heat recovery gathers and uses thermal energy that normally would be rejected from the system to the ambient environment; in this case, rejected heat is utilized by the water heater.

Other

Convection Oven. Commercial ENERGY STAR electric convection ovens must meet specification requirements of 74% cooking energy-efficiency, and an idle energy rate of 1.3 kW, whereas standard electric convection ovens have a 67% cooking energy efficiency, and an idle energy rate of 1.5 kW.

Cooking Hood Controls. Utilizing sensors and two-speed or variable speed fans, hood controls reduce exhaust (and makeup) airflow when appliances do not operate at capacity (or have been turned off). The baseline for this measure would be no hood controls.

ENERGY STAR—Battery Charging System. Battery charging systems recharge a wide variety of cordless products, including power tools and small appliances. An ENERGY STAR charging system uses 35% less energy than a baseline, non-ENERGY STAR battery charger.³⁷

³⁷ http://www.energystar.gov/index.cfm?c=battery_chargers.pr_battery_chargers

ENERGY STAR—Mini-Split AC. Ductless air conditioners move heat to or from the air, cooling homes without the need for costly ductwork. This measure provides savings when compared to room air conditioners.

ENERGY STAR—Mini-Split Heat Pump. Ductless heat pumps move heat to or from the air, cooling and heating homes without the need for costly ductwork. This measure provides savings when compared to baseboard heating or room air conditioners.

ENERGY STAR—Scanners. ENERGY STAR-enabled scanners enter a low power “sleep” mode after inactivity.³⁸

ENERGY STAR—Water Cooler. ENERGY STAR coolers, providing only cold water, consume less than 0.16 kWh per day; a unit providing hot and cold water consumes less than 1.20 kWh per day. ENERGY STAR-qualified water coolers consume 45% less energy than standard models.³⁹

Fryers. Commercial, 15-inch wide, CEE-rated electric fryers have a heavy-load cooking efficiency of 80% or better, and, when idle, use less than 1,000 watts.⁴⁰ The baseline is a standard, electric deep fat fryer.

Griddle. Electric ENERGY STAR griddles operate at least 70% more efficiently. The baseline measure is a standard grill at 32% efficiency.⁴¹

Hot Food Holding Cabinet. ENERGY STAR hot food-holding cabinets use a maximum of 40 watts/cubic foot, less than the baseline measure—a conventional holding cabinet.⁴²

Ice Maker. High-efficiency commercial ice makers use high-efficiency compressors and fan motors, thicker insulation, and other measures to achieve 10% more efficiency than the baseline measure—a conventional automatic commercial ice maker.

Motor—CEE Premium-Efficiency Plus. CEE premium-efficiency motors are more efficient than standard NEMA efficiency motors.⁴³ This measure specifically relates to HVAC motors, ranging from 1 HP to 200 HP, depending on the building size.

Motor—Pump & Fan System—Variable Speed Control. Variable speed controls allow pump and fan motors to operate at lower speeds, while still maintaining set points during partial load conditions. Energy reduces when motor operation varies with load rather than runs at a constant speed.

³⁸ <http://www.energystar.gov.au/products/scanners.html>

³⁹ http://www.energystar.gov/index.cfm?c=water_coolers.pr_water_coolers

⁴⁰ http://www.energystar.gov/index.cfm?c=fryers.pr_fryers

⁴¹ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=COG

⁴² http://www.energystar.gov/index.cfm?c=hfhc.pr_hfhc

⁴³ CEE (Consortium for Energy Efficiency) motor nominal efficiencies are higher than the NEMA federal minimum efficiency levels that became effective in December 2010.

Motor Rewind. When a motor fails, the user or owner faces three choices: rewind to a lower efficiency; rewind and maintain the original efficiency; or replacement with a new motor. Motor rewind follows the Green Motors Practices Group recommendations of best practices to maintain its original efficiency, commonly called a Green Rewind.^{44,45}

Network PC Power Management. This software tool intelligently power-manages computers across a network remotely and automatically overnight, on weekends, and when not in use. This significantly lowers energy consumption without impacting user productivity. Workstations operating on a local area network (LAN) or a wide area network (WAN) can implement PC power-management policies across a LAN or WAN to maximize energy savings by placing machines into lower power states, without interfering with end-user productivity, desktop maintenance, or upgrades.

Optimized Variable Volume Lab Hood Design. Allows the volumetric flow rate to vary, which causes a constant speed through the duct, regardless of the sash opening. For buildings such as universities, schools, and hospitals using lab hoods, savings can be obtained by utilizing a variable —rather than constant—volume lab hood. The baseline measure is a constant volume lab hood.

Pool Pump Timers. This measure reduces the run time of pumps to accommodate decreased pool activity in the cooler seasons. Baseline is running a pump for eight hours a day, regardless of the season.

Residential Freezer Recycling. This refers to environmentally friendly disposal of unneeded appliances, specifically standalone freezers.

Residential Refrigerator Recycling. This refers to environmentally friendly disposal of unneeded appliances, specifically refrigerators.

Server Virtualization. Virtualization involves replacement of multiple, underutilized servers with a single server, operating at a higher utility level. Many data center servers operate at 10% of capacity or less, allowing their functions to be consolidated into “virtual” servers on one unit, operating in the range of 85% of capacity.

Smart Strips. Energy-saving products, such as power strips with an occupancy sensor, are found in workstations where power strips are commonly used. Sensor turn on and off power to all devices, such as computers, desk lights, and audio equipment, plugged into the power strip, based on occupancy within the work area.

⁴⁴ http://www.bpa.gov/energy/n/industrial/Green_motors/

⁴⁵ http://www.greenmotors.org/downloads/RTFSubmittalMay_08%20_2_.pdf

Steam Cooker. Commercial ENERGYSTAR electric steam cookers have a cooking efficiency of 50%, with idle energy rates varying depending on the pan size.⁴⁶ The baseline efficiency is 35% for a standard commercial steam cooker.

6. Commercial Electric Equipment Measure Descriptions

Heating and Cooling

Air or Ground Source Heat Pump (ASHP or GSHP). Electric heat pumps move heat to or from the air or ground to cool and heat homes. Air and ground source heat pumps use a Coefficient of Performance (COP) ratio of the cooling effect produced (expressed in Btu/hr), divided by the energy input (expressed on the same basis and as an EER Ratio). Table D-2.42 displays different efficiency levels compared in this measure.

Table D-2.42. Heat Pump COP/EER Comparisons

kBTU/hr	Measure COP & EER	Baseline COP & EER
ASHP 65–135	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP
ASHP 65–135	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP
GSHP 65–135	16.2 EER, 4.0 COP	11.0 EER, 3.3 COP
ASHP 135–240	11.0 EER, 3.3 COP	10.6 EER, 3.2 COP
ASHP 135–240	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP
GSHP 135–240	16.2 EER, 4.0 COP	10.6 EER, 3.2 COP
ASHP >240	10.0 EER, 3.3 COP	9.5 EER, 3.2 COP
ASHP >240	10.5 EER, 3.4 COP	9.5 EER, 3.2 COP
GSHP >240	16.2 EER, 4.0 COP	9.5 EER, 3.2 COP

Centrifugal Chiller. A centrifugal chiller utilizes the vapor compression cycle to chill water and reject heat collected from the chilled water, plus heat from the compressor moves to a second water loop, cooled by a cooling tower. The advantage of centrifugal compressors is they have high flow rates capabilities and good efficiency characteristics. This measure compares different efficiencies, greater than 300 tons and rated in kW/ton, as shown in Table D-2.43.

⁴⁶ http://www.energystar.gov/index.cfm?c=steamcookers.pr_steamcookers

Table D-2.43. Centrifugal Chiller kW/ton Comparison

Measure kW/ton	Baseline kW/ton
0.55	0.576
0.52	0.576
0.47	0.576

Screw Chiller. Screw compressors are positive displacement devices. The refrigerant chamber is actively compressed to a smaller volume by the twisting motion of two, interlocking, rotating screws. Refrigerant trapped in the space enclosed between the two rotating screws is compressed as it makes its way from the inlet to the outlet of the compressor. A slide valve adjusts the compression effect by varying the amount of compression occurring before refrigerant is discharged. Screw chillers generally are used for small to medium-sized buildings. This measure compares different efficiencies, rated in kW/ton, as shown in Table D-2.44.

Table D-2.44. Screw Chiller kW/ton Comparison

Tons	Measure kW/ton	Baseline kW/ton
<150	0.71	0.775
<150	0.63	0.775
<150	0.58	0.775
150-300	0.63	0.68
150-300	0.58	0.68
150-300	0.52	0.68

DX Package. DX systems use a refrigerant piping circuit, compressor, and refrigerant coils to transfer heat. A single package, typically installed on the building roof, contains all the components. As a measurement of efficiency, commercial-sized units are normally rated as an Energy Efficient Ratio (EER). Table D-2.45 displays the different models compared in this measure.

Table D-2.45. DX AC Unit EER/Advanced Technology Comparisons

kBTU/hr	Measure EER	Baseline EER
65-135	11.5	11.2
65-135	12.0	11.2
135-240	11.5	11.0
135-240	12.0	11.0
240-760	10.5	10.0
240-760	10.8	10.0

Evaporative Cooler, Replaces DX Package. Evaporative coolers, also known as swamp coolers, cool air through simple evaporation of water. Evaporative cooling differs from standard air conditioning, which uses vapor-compression or absorption refrigeration cycles.⁴⁷ This measure replaces a DX package.

⁴⁷ http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12360

Packaged Terminal Air Conditioner (PTAC) (10,000 BTU/HR). PTAC units house all components—compressor; condenser and evaporator coils; expansion device; condenser and evaporator fans; and associated operating and control devices—within a single cabinet. In most cases, this package unit is installed within a space and through the wall, as in the lodging segment. The baseline for this measure is a 10.4 EER, upgraded to an 11.4 EER PTAC.

Lighting

Lighting Interior Fluorescent. This measure upgrades fluorescent lighting fixtures to a more efficient lighting technology. A lumen equivalence is used to avoid changing the lighting level by varying the number of fixtures during the upgrade process. If the lumen equivalence happens to be within 10% of the baseline lumens, however, the number of fixtures remains constant. This measure only applies to existing construction. Table D-2.46 displays the different models compared in this measure.

Table D-2.46. Fluorescent Lighting Comparison

Measure	Baseline
Reduced Wattage T8	T8
High Performance T8	T8
T5	T8

Lighting Interior High Intensity Discharge (HID) and High Bay. This measure represents upgrading HID and high-bay lighting fixtures to more efficient lighting technologies. A lumen equivalence is used to avoid changing the lighting level by varying the number of fixtures during the upgrade process. If the lumen equivalence happens to be within 10% of the baseline lumens, however, the number of fixtures remains constant. This measure only applies to existing construction. Table D-2.47 displays the different models compared in this measure.

Table D-2.47. HID and High Bay Lighting Comparison

Measure	Baseline
Metal Halide	High Pressure Sodium
Induction	High Pressure Sodium
Efficient Metal Halide	High Pressure Sodium
LED	High Pressure Sodium
T5 High Output	High Pressure Sodium

Lighting Interior Screw Base. This measure upgrades screw-based lighting fixtures to a more efficient lighting technology. A lumen equivalence is used to avoid changing the lighting level by varying the number of fixtures during the upgrade process. If the lumen equivalence happens to be within 10% of the baseline lumens, however, the number of fixtures remains constant. This measure only applies to existing construction. Table D-2.48 displays the different models compared in this measure.

Table D-2.48. Screw Base Lighting Comparison

Measure	Baseline
---------	----------

CFL	Incandescent
LED	Incandescent
CFL	EISA Incandescent
LED	EISA Incandescent

Lighting Package, High Efficiency. This measure represents the achievable lighting percentage decrease in lighting power density. The baseline lighting technology is representative of all available technologies making up the total watts per square foot for that particular building type. This includes all overhead lighting (e.g., T12, T8, T5 tubes, canned CFLs). The lighting reduction package measures reduce the lighting power density (W/sqft) by installing higher-efficiency technologies, such as high-performance T8 or T5 tubes, high-efficiency ballasts, and reflective lighting fixtures. This measure only applies to new construction.

Water Heating

Storage and Heat Pump Water Heater. High-efficiency water heaters operate more efficiently than standard electric water heaters due to reduced standby losses. Table D-2.49 shows baseline and efficient measure EF values.

Table D-2.49. Water Heater EF Comparisons

Water Heater Capacity	Measure EF	Baseline EF
≤ 55 Gallons	Heat Pump Water Heater = 2.0	2004 Federal Standard = 0.92
≤ 55 Gallons	Heat Pump Water Heater = 2.0	2015 Federal Standard = 0.95
> 55 Gallons	Heat Pump Water Heater = 2.0	2004 Federal Standard = 0.87
> 55 Gallons	Heat Pump Water Heater = 2.0	2015 Federal Standard = 1.97

Other

Computer—ENERGY STAR. ENERGY STAR computers consume less than 2 watts in “sleep” and “off” modes, and operate more efficiently than conventional units in “idle” mode, resulting in 32% energy savings.

Copiers—ENERGY STAR. ENERGY STAR copiers deliver the same performance as conventional equipment, operate, on average, 27% more efficiently, and power down when not in use. The baseline measure is a non-ENERGY STAR copier.⁴⁸

Fax—ENERGY STAR. ENERGY STAR fax machines enter sleep mode after inactivity, reducing their total power consumption by 50%.⁴⁹

⁴⁸ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CP

⁴⁹ http://www.energystar.gov/ia/products/fap/IE_Prog_Req.pdf

Freezer—Residential. ENERGY STAR-qualified freezers use at least 10% less energy than standard models due to improvements in insulation and compressors. This measure considers the change in 2015 federal standard efficiency levels. Table D-2.50 shows the baseline and efficient measures.

Table D-2.50. Freezers Comparison

Measure	Baseline
ENERGY STAR	Federal Standard 2001
ENERGY STAR	Federal Standard 2015

Monitors—ENERGY STAR. ENERGY STAR monitors feature the following: (1) an “on” mode, where the maximum allowed power varies, based on the computer monitor’s resolution; (2) a “sleep” mode, where computer monitor models must consume 2 watts or less; and (3) an “off” mode, where computer monitor models must consume 1 watt or less. The baseline equipment does not include these features.⁵⁰

Printers—ENERGY STAR. ENERGY STAR printers deploy a maximum time delay to sleep, depending upon the equipment’s size. This reduces power consumption during inactive periods, resulting in 37% energy savings.⁵¹

Refrigerator—Residential. ENERGY STAR and CEE-qualified refrigerators use at least 20% less energy than standard models, due to improvements in insulation and compressors. This measure considers the change in 2015 federal standard efficiency and two CEE tiers above ENERGY STAR. Table D-2.51 shows the baseline and efficient measures.

⁵⁰ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.ShowProductGroup&pgw_code=MO

⁵¹ http://www.energystar.gov/ia/products/fap/IE_Prog_Req.pdf

Table D-2.51. Refrigerator Comparison

Measure	Baseline
ENERGY STAR/CEE Tier 1	Federal Standard 2001
CEE Tier 2	Federal Standard 2001
CEE Tier 3	Federal Standard 2001
ENERGY STAR/CEE Tier 1	Federal Standard 2015
CEE Tier 2	Federal Standard 2015
CEE Tier 3	Federal Standard 2015

Server—ENERGY STAR. Servers must meet energy use guidelines in “off” (less than 2 watts) and “idle” (either 50 watts or 65 watts, according on the category) modes of operation, ensuring energy savings when computers are used and performing a range of tasks as well as when turned off or in a low-power mode.⁵²

Vending Machines—High Efficiency. ENERGY STAR new and rebuilt refrigerated beverage vending machines operate 36% more energy efficiently than standard models, using more efficient compressors, fan motors, lighting systems, and low-power mode options during non-use periods.⁵³

7. Commercial Natural Gas Retrofit Measure Descriptions

Heating and Cooling

Automated Ventilation (VFD) Control (Occupancy Sensors/CO₂ sensors). This measure is also known as DCV, where the ventilation system automatically adjusts air flow when CO₂ rises above a specified level. CO₂ controls maintain a minimum ventilation rate at all times to control non-occupant contaminants, such as off-gassing from furniture, equipment, and building components. The baseline of this measure is a ventilation system that runs constantly.

Boiler Economizer. This measure recovers heat energy that would otherwise be lost out a boiler stack by using a heat exchanger located on the stack, to preheat boiler feed water.

Boiler—Pipe Insulation. Adding insulation around pipes decreases heat loss. The baseline is a boiler pipe with 1 inch of insulation. Table D-2.52 shows thicknesses of pipe insulation compared in this measure.

Table D-2.52. Boiler Pipe Insulation Levels

Measure Thickness	Baseline Thickness
2 in (Code)	1 in (Existing)
3 in	2 in (Code)

Boiler Reset Controls. Boiler controls systems have microprocessor controls that anticipate heating load demand by calculating rates of system temperature or pressure changes. Controls also provide

⁵² http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CO

⁵³ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=VMC

adjustable reset points for setback and programmable time clock controls. The baseline assumes no controls.⁵⁴

Commissioning. Commissioning ensures installed energy-using systems operate in an optimal fashion to maximize energy efficiency. The baseline measure is no commissioning.

Convert Constant Volume Air System to VAV. The VAV allows the airflow volume of a HVAC system to vary heating or cooling loads rather than over-conditioning and short-cycling. The baseline in this case is a constant volume system.

Direct Digital Control System-Installation. DDC systems allow both HVAC and lighting to be controlled and monitored. For lighting, the DDC system allows for direct control of lights from a remote location. Entire HVAC systems, including pumps, motors, fans, and set points, can be digitally programmed for tighter control of the system.

Duct Repair and Sealing. The repair and sealing of leaky ducts creates significant energy savings by ensuring conditioned air goes only to occupied spaces, thereby reducing excessive runtimes/loads on HVAC systems.

Exhaust Air to Ventilation Air Heat Recovery. Captures air exhausted out of a building during the heating season, which would be warmer than the air outside. Transferring this heat to incoming air lowers overall heating loads.

Exhaust Hood Makeup Air. Provides exhaust air at the hood instead of allowing the hood to exhaust conditioned air in the room. The baseline measure is conditioned air expelled through exhaust hoods.

Infiltration Reduction. Sealing air leaks in windows, doors, roof, crawlspaces, and outside walls decreases overall heating and cooling losses. The baseline measure is 1.00 ACH, while the measure value is 0.65 ACH.

Insulation—Ceiling. These measures represent an increase in an R-value from existing building conditions to current state code, and from current state code to better-than-code R-value improvements. Table D-2.53 presents baseline and measure values.

⁵⁴ <http://energyexperts.org/EnergySolutionsDatabase/ResourceDetail.aspx?id=1579>

Table D-2.53. Ceiling Insulation Measures

Measure	Baseline
R-20ci (KY State Code)	Average Existing Conditions
R-30	R-20ci (KY State Code)

Insulation—Duct. Packaged DX and heat-pump equipment generally are coupled with a ducting system inside a building. Insulating ducts reduces energy loss in unoccupied plenum space. Table D-2.54 presents baseline and measure values.

Table D-2.54. Duct Insulation Measures

Measure	Baseline
R-5 (KY State Code)	Average Existing Conditions
R-8	R-5 (KY State Code)

Insulation—Floor (Non-slab). These measures represent an R-value increase from existing building conditions to current state code, and from current state code to better than code R-value improvements for the floor space (non-slab). Table D-2.55 presents baseline and measure values.

Table D-2.55. Floor Insulation Measures

Measure	Baseline
R-30 (KY State Code)	Average Existing Conditions
R-38	R-30 (KY State Code)

Insulation—Wall. These measures represent an increase in the R-value to current state code values or better. Table D-2.56 presents baseline and measure values.

Table D-2.56. Wall Insulation Measures

Measure	Baseline
R-13 + 7.5 (KY State Code)	Average Existing Conditions
R-13 + 10	R-13 + 7.5 (KY State Code)

Re-Commissioning. The commissioning process can be applied to existing buildings to restore them to optimal performance. Retrocommissioning is a systematic, documented process, identifying low-cost operational and maintenance improvements in existing buildings, bringing the buildings up to the design intentions of its current operation.^{55,56} The baseline measure is no commissioning.

Tune-up—Boiler and Furnace Maintenance. Proper system maintenance and tune-ups ensure clean burners, combustion chambers, and heat exchange surfaces. Flame colors are checked for proper burning. Other items checked include: fan belts, blowers, safety controls, the rmostat operations, proper venting, and filters. All motors are lubricated, and a combustion efficiency test is performed. Properly maintaining an existing unit keeps efficiency at the highest level possible.

⁵⁵ <http://www.green.ca.gov/CommissioningGuidelines/default.htm>

⁵⁶ <http://cbs.lbl.gov/BPA/cct.html>

Windows-High Efficiency. This measure represents an increase in building performance by reducing the U-value in existing construction and new construction windows, as shown in Table D-2.57.

Table D-2.57. High-Efficiency Window Measures

Measure U-Value	Baseline U-Value
U-0.40 (KY State Code)	Average Existing Condition
U-0.32	U-0.40 (KY State Code)

Water Heating

Clothes Washer Commercial, ENERGY STAR. This measure has greater capacity than conventional top-load models with an agitator. Some front-loaders can wash over 20 pounds of laundry at once, compared to 10 to 15 pounds for a standard top-loader.⁵⁷ ENERGY STAR commercial clothes washers have an MEF/WF of 2.43/4.0, compared to commercial, 2013, federal-standard clothes washers with a 1.6/8.5 MEF/WF.

Clothes Washer Residential, ENERGY STAR. ENERGY STAR-qualified residential clothes washers use less energy and water than regular washers.⁵⁸ ENERGY STAR residential clothes washers have an MEF/WF of 2.0/6.0, compared to residential, 2011, federal-standard clothes washers with a 1.26/9.0 MEF/WF.

Dishwasher Residential. Residential-sized ENERGY STAR dishwashing systems often prove more appropriate for smaller commercial buildings. ENERGY STAR residential dishwashers have an maximum consumption of 295 kWh/yr and maximum water usage of 4.25 gal/cycle, compared to residential, 2010, federal-standard dishwashers, with a maximum consumption of 355 kWh/yr and maximum water usage of 6.5 gal/cycle.

Demand Controlled Circulating Systems. A demand-controlled circulating system only circulates hot water when required. The baseline measure is a continuously circulating hot water system, resulting in energy loss through pipes.

Dishwashing—Commercial—High Temp. ENERGY STAR high-temperature commercial dishwashers have a minimal idle rate as well as a minimal amount of water consumption per rack of loaded dishes, depending on size, and operate more efficiently than standard, high-temperature, commercial dishwashers.⁵⁹

Dishwashing—Commercial—Low Temp. ENERGY STAR low-temperature commercial dishwashers use chemicals, combined with low temperatures, to save energy when compared to standard, high-temperature, commercial dishwashers.

⁵⁷ http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers_comm

⁵⁸ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW

⁵⁹ ENERGY STAR;
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=COH

Domestic Hot Water Pipe Insulation. One inch of R-4 insulation, added around hot water pipes, decreases heat loss. This measure only applies for existing construction and SWH. The baseline measure is no insulation.

Drainwater Heat Recovery Water Heater. Drainwater heat recovery devices recover heat energy from drainwater, and use the heat to preheat cold water entering the hot water tank, minimizing the temperature rise required to achieve the set point on the water heater.⁶⁰

Low-Flow Faucet Aerators. Faucet aerators, mixing water and air, reduce amounts of water flowing through the faucet, creating a fine water spray through a screen inserted in the faucet head.

Table D-2.58 shows flow-rate requirements for this measure.

Table D-2.58. Low-Flow Faucet Aerator Flow Rates

Measure Flow Rate (GPM)	Baseline Flow Rate (GPM)
2.2 (Federal Code)	2.5
1.5	2.2 (Federal Code)
0.5	2.2 (Federal Code)

Low-Flow Pre-Rinse Spray Valves. Low-flow spray valves mix water and air to reduce amounts of water flowing through a spray head, which creates a fine water spray through a screen inserted in the spray head. This achieves a flow reduction of 37.5%, from a flow rate of 1.6 GPM (code) to 1.0 GPM.

Low-Flow Showerheads. Low-flow showerheads mix water and air to reduce amounts of water flowing through the showerhead. The showerhead creates a fine water spray using an inserted screen in the showerhead. Table D-2.59 shows flow-rate requirements for this measure.

⁶⁰ www.toolbase.org/TechInventory/TechDetails.aspx?ContentDetailID=858&BucketID=6&CategoryID=9

Table D-2.59. Low-Flow Showerhead Flow Rates

Measure Flow Rate (GPM)	Baseline Flow Rate (GPM)
2.5 (Federal Code)	3.0
1.5	2.5 (Federal Code)

Water Cooled Refrigeration with Heat Recovery. Heat recovery gathers and uses thermal energy that normally would be rejected from the system to the ambient environment; in this case, a water heater utilizes the rejected heat.

Other

Broiler. High-efficiency broiler ovens have rigorous start-up, shut down, and turn-down schedules for additional energy savings over standard units. Improved efficiency broilers have an efficiency of 34%, compared to baseline models at 15%.

Convection Oven. Commercial ENERGYSTAR electric convection ovens must meet specification requirements of 74% cooking energy-efficiency, and an idle energy rate of 1.3 kW, whereas standard electric convection ovens have a 67% cooking energy efficiency, and an idle energy rate of 1.5 kW.

Conveyor Oven. A high-efficiency conveyor oven operates at 23% efficiency, compared to a standard conveyor oven at 15% efficiency.

Integrated Space Heating/Water Heating. These systems provide space conditioning and hot water heating in one appliance/energy source. Domestic hot water is heated directly, and space is heated by a hot water heat exchanger coil piped to the forced air heating system. This combination space/water heating system provides high-efficiency heating for the cost of one high-efficiency appliance.

Fryers. These measures operate at 50% efficiency, and when idle use less than 9,000 Btu/hr.⁶¹ The baseline efficiency is 35% for a non-ENERGYSTAR commercial fryer.

Griddle. This measure is approximately 10% more efficient than standard models, and must have a minimum cooking efficiency of 38%. They must use less than 0.026 therm/hour/ft² when idle. The baseline measure is a standard grill at 32% efficiency.⁶²

Swimming Pool/Spa Covers. This measure reduces evaporation, which is the largest source of pool/spa energy loss. It takes one British thermal unit (Btu) to raise one pound of water by 1 degree. Each pound of 80° F water that evaporates takes 1,048 Btus of heat out of the pool.⁶³ The baseline measure is an uncovered pool or spa.

⁶¹ http://www.energystar.gov/index.cfm?c=fryers.pr_fryers

⁶² http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=COG

⁶³ http://www.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13140

8. Commercial Natural Gas Equipment Measure Descriptions

Heating and Cooling

Gas Boiler. Boilers are classified as condensing or non-condensing. Condensing boilers condense the flue gas and water vapor, extracting useful heat and improving the boiler efficiency. This measure compares several boilers with different thermal efficiencies, and is applicable to new and existing construction. The boiler’s overall efficiency is defined as the gross energy output divided by the energy input, and is affected by combustion efficiency, standby losses, cycling losses, and heat transfer. Table D-2.60 displays the measure and baseline efficiencies.

Table D-2.60. Gas Boiler Efficiency Comparison

kBTU/hr	Measure	Baseline
<300	90% AFUE	82% AFUE
<300	94% AFUE	82% AFUE
<300	96% AFUE	82% AFUE
≥300 to 2,500	85% Thermal Efficiency	75% Thermal Efficiency
≥300 to 2,500	95% Thermal Efficiency	75% Thermal Efficiency

Gas Furnace. Improvements in furnace technology, such as new ignition and heat exchange design, have led to increased furnace efficiency. Table D-2.61 shows the AFUE levels considered in this measure.

Table D-2.61. Gas Furnace Efficiency Comparison

Measure AFUE	Baseline AFUE
92%	90%
94%	90%
96%	90%

Water Heating

Water Heater. High-efficiency water heaters operate more efficiently than standard gas water heaters due to reduced standby losses. Table D-2.62 shows baseline and efficient measure EF values.

Table D-2.62. Water Heater EF Comparisons

Water Heater Capacity	Measure EF	Baseline EF
≤ 55 Gallons	Water Heater = 0.62	2004 Federal Standard = 0.594
≤ 55 Gallons	Water Heater = 0.67	2004 Federal Standard = 0.594
≤ 55 Gallons	Tankless Water Heater = 0.82	2004 Federal Standard = 0.594
≤ 55 Gallons	Condensing Water Heater = 0.90	2004 Federal Standard = 0.594
≤ 55 Gallons	Water Heater = 0.62	2015 Federal Standard = 0.615
≤ 55 Gallons	Water Heater = 0.67	2015 Federal Standard = 0.615
≤ 55 Gallons	Tankless Water Heater = 0.82	2015 Federal Standard = 0.615
≤ 55 Gallons	Condensing Water Heater = 0.90	2015 Federal Standard = 0.615
> 55 Gallons	Water Heater = 0.62	2004 Federal Standard = 0.528
> 55 Gallons	Water Heater = 0.67	2004 Federal Standard = 0.528
> 55 Gallons	Condensing Water Heater = 0.85	2004 Federal Standard = 0.528
> 55 Gallons	Condensing Water Heater = 0.85	2015 Federal Standard = 0.743

Appendix E. Detailed Results

The following pie charts show achievable potential distributed by fuel, sector, segment, and end use.

Figure E.1 Electric Achievable Economic Potential: Residential by Segment

Total: 920,185 MWh

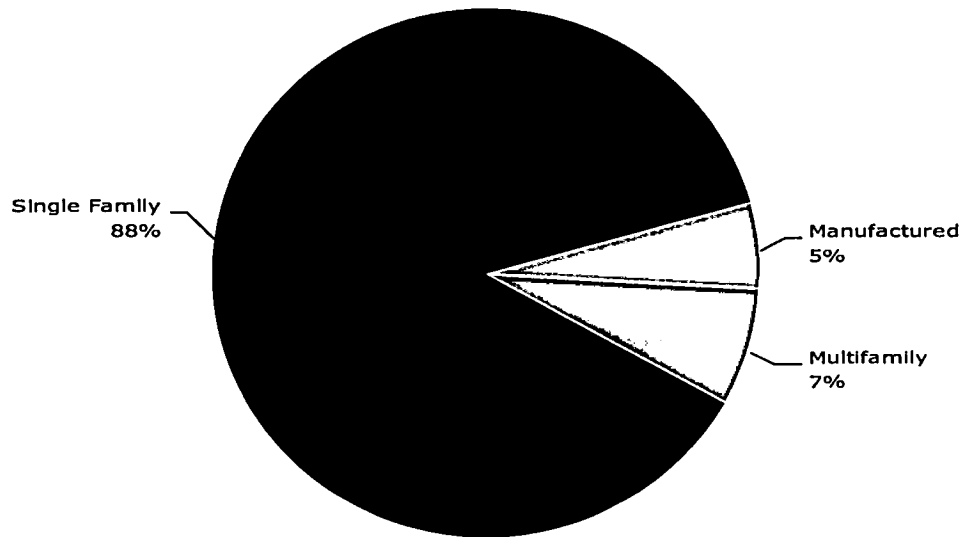
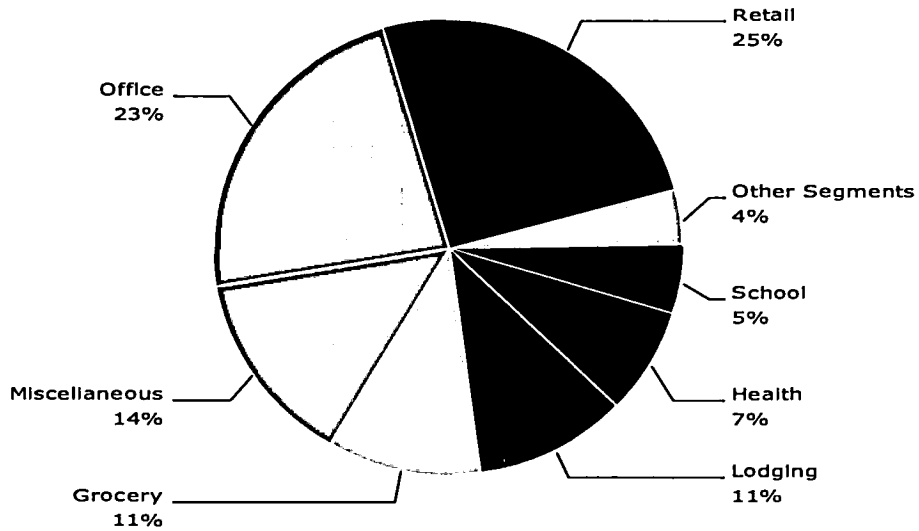


Figure E.2 Electric Achievable Economic Potential: Commercial by Segment

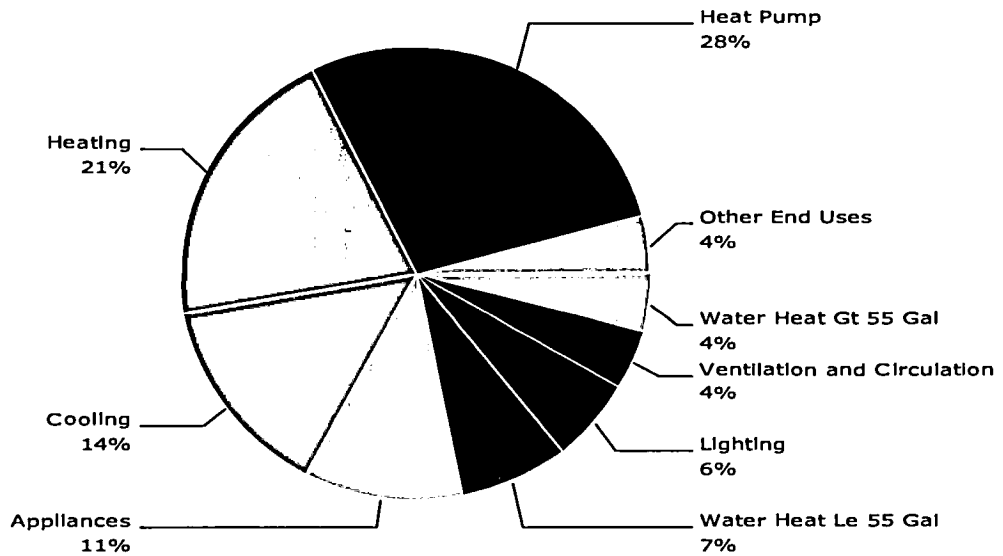
Total: 461,670 MWh



Note: 'Other Segments' Includes:
 Restaurant: 3%, Warehouse: 1%

Figure E.3 Electric Achievable Economic Potential: Residential by End Use

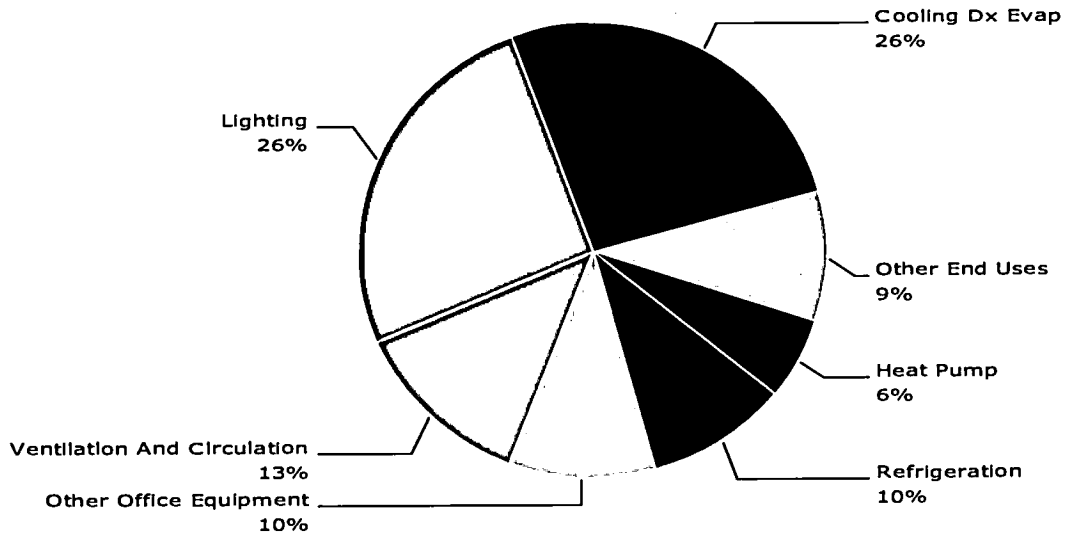
Total: 920,185 MWh



Note: 'Other End Uses' Includes:
 Plug Load: 4%, Pool Pump: <1%

Figure E.4 Electric Achievable Economic Potential: Commercial by End Use

Total: 461,670 MWh

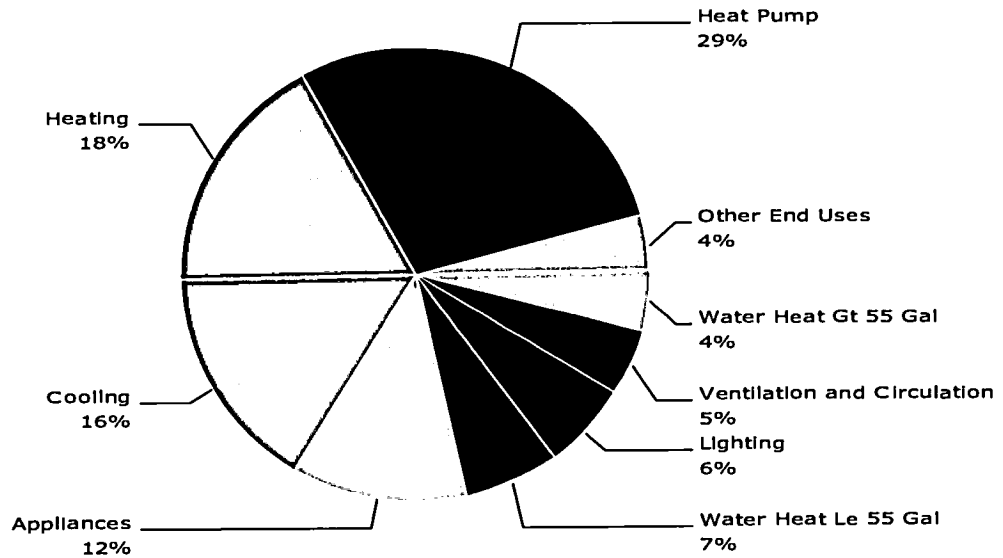


Note: 'Other End Uses' Includes:

Pool Pump: 3%, Package Terminal Hp: 2%, Cooling: 2%, Water Heat Le 55 Gal: 1%, Appliances: 1%, Water Heat Gt 55 Gal: <1%, Lighting Interior Hld: <1%, Room Cool: <1%, Package Terminal Ac: <1%, Cooking: <1%, Heating: <1%, Room Heat: <1%

Figure E.5 Electric Achievable Economic Potential: Residential Single Family by End Use

Total: 806,635 MWh

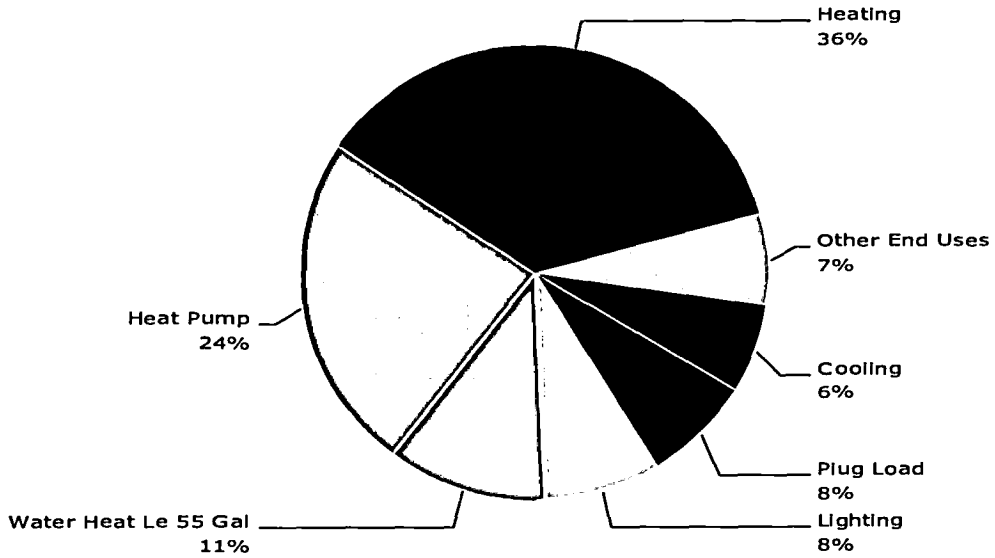


Note: 'Other End Uses' Includes:

Plug Load: 4%, Pool Pump: <1%

Figure E.6 Electric Achievable Economic Potential: Residential Multifamily by End Use

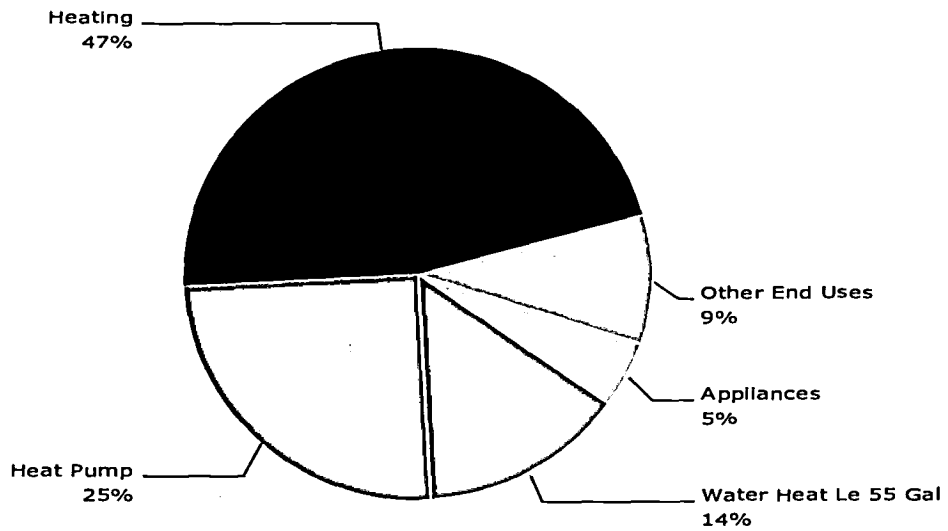
Total: 65,257 MWh



Note: 'Other End Uses' includes:
Water Heat Gt 55 Gal: 4%, Appliances: 3%

Figure E.7 Electric Achievable Economic Potential: Residential Manufactured by End Use

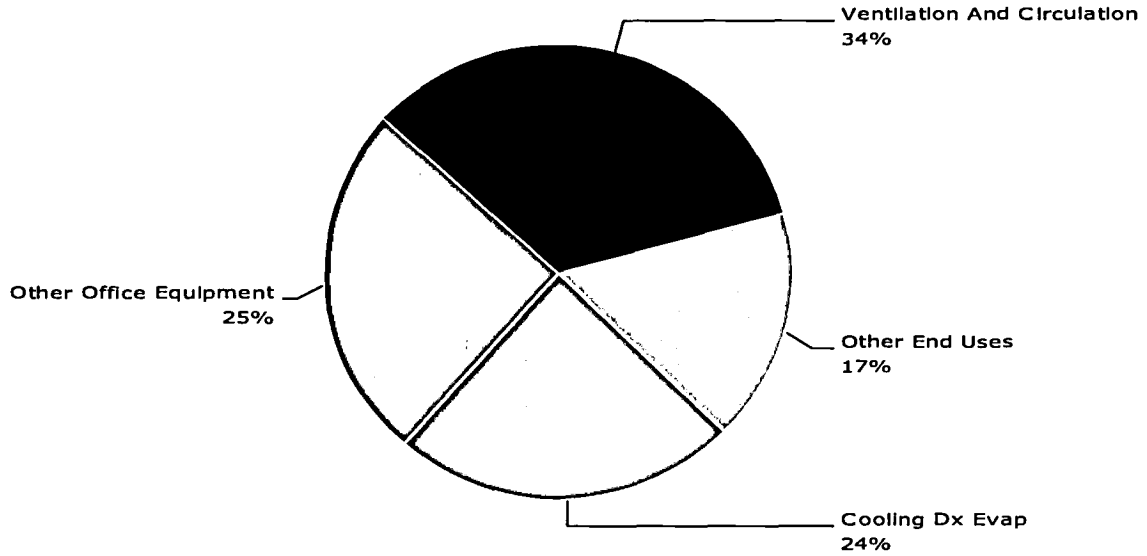
Total: 48,293 MWh



Note: 'Other End Uses' includes:
Lighting: 3%, Plug Load: 2%, Water Heat Gt 55 Gal: 2%, Cooling: 2%

Figure E.8 Electric Achievable Economic Potential: Commercial School by End Use

Total: 22,879 MWh

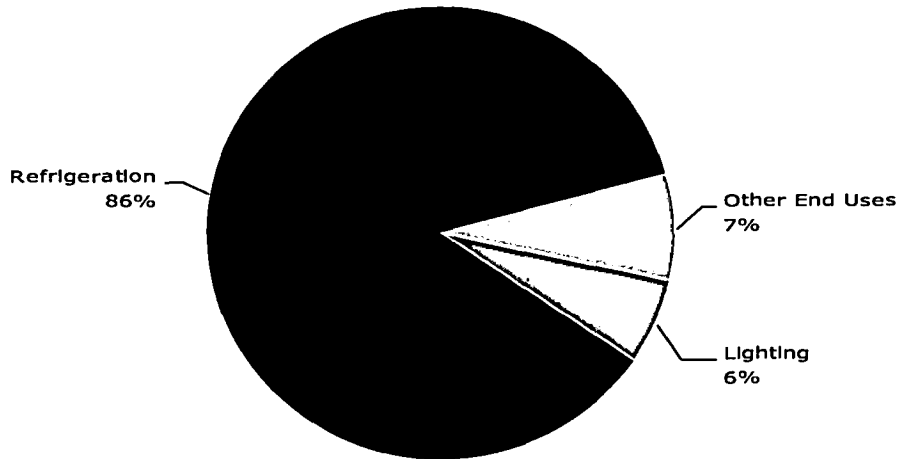


Note: 'Other End Uses' Includes:

Heat Pump: 4%, Lighting: 3%, Water Heat Le 55 Gal: 2%, Appliances: 2%, Cooling: 2%, Pool Pump: 1%, Water Heat Gt 55 Gal: 1%, Refrigeration: <1%, Lighting Interior Hld: <1%, Room Cool: <1%, Cooking: <1%

Figure E.9 Electric Achievable Economic Potential: Commercial Grocery by End Use

Total: 49,160 MWh

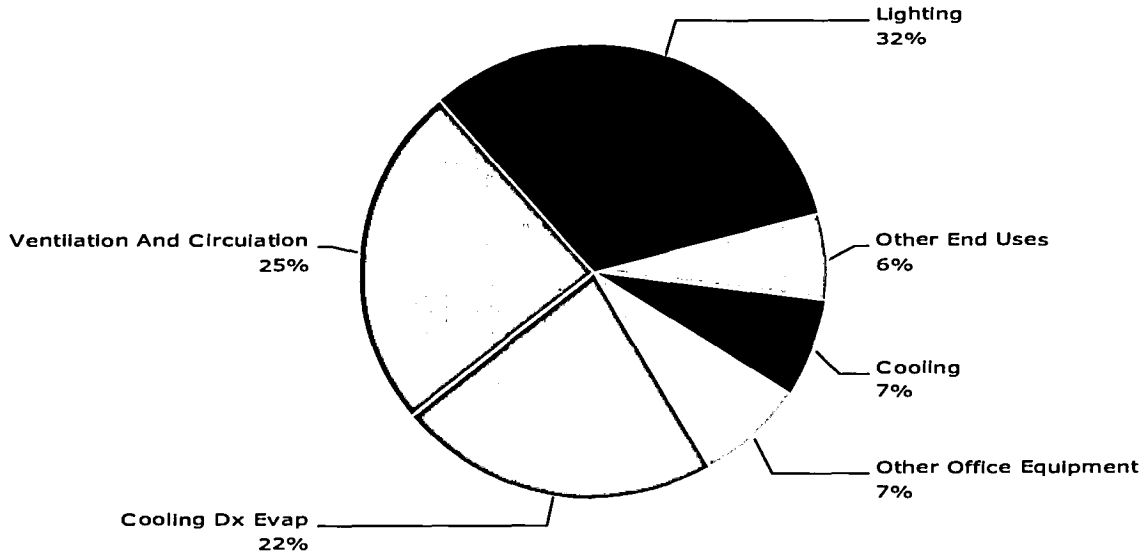


Note: 'Other End Uses' Includes:

Cooling Dx Evap: 2%, Heat Pump: 2%, Ventilation And Circulation: 1%, Other Office Equipment: <1%, Lighting Interior Hld: <1%, Appliances: <1%, Cooking: <1%, Heating: <1%, Water Heat Le 55 Gal: <1%, Room Heat: <1%, Room Cool: <1%, Water Heat Gt 55 Gal: <1%

Figure E.10 Electric Achievable Economic Potential: Commercial Health by End Use

Total: 34,470 MWh

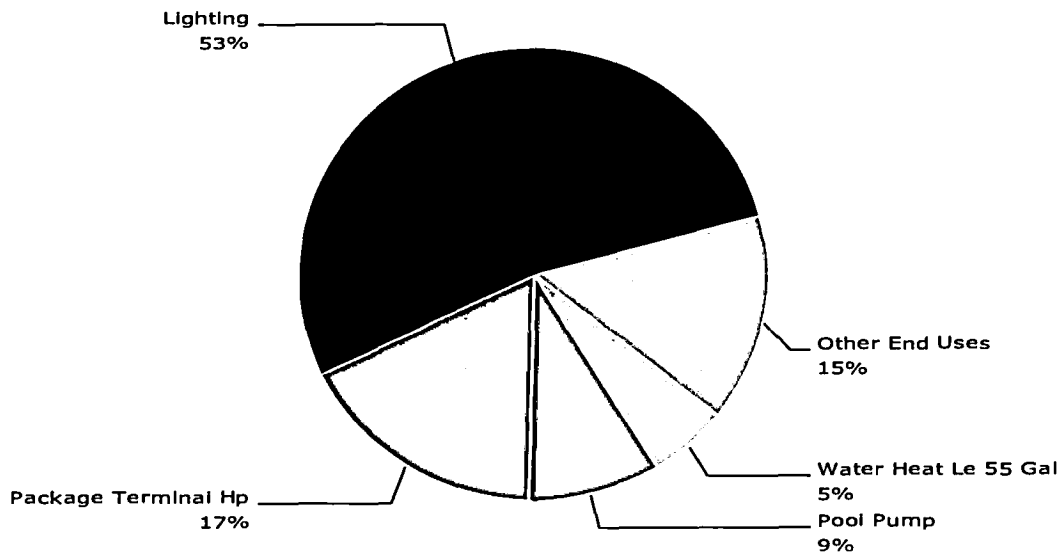


Note: 'Other End Uses' includes:

Heat Pump: 4%, Refrigeration: <1%, Appliances: <1%, Water Heat Le 55 Gal: <1%, Water Heat Gt 55 Gal: <1%, Lighting Interior Hid: <1%, Room Cool: <1%, Cooking: <1%

Figure E.11 Electric Achievable Economic Potential: Commercial Lodging by End Use

Total: 48,723 MWh

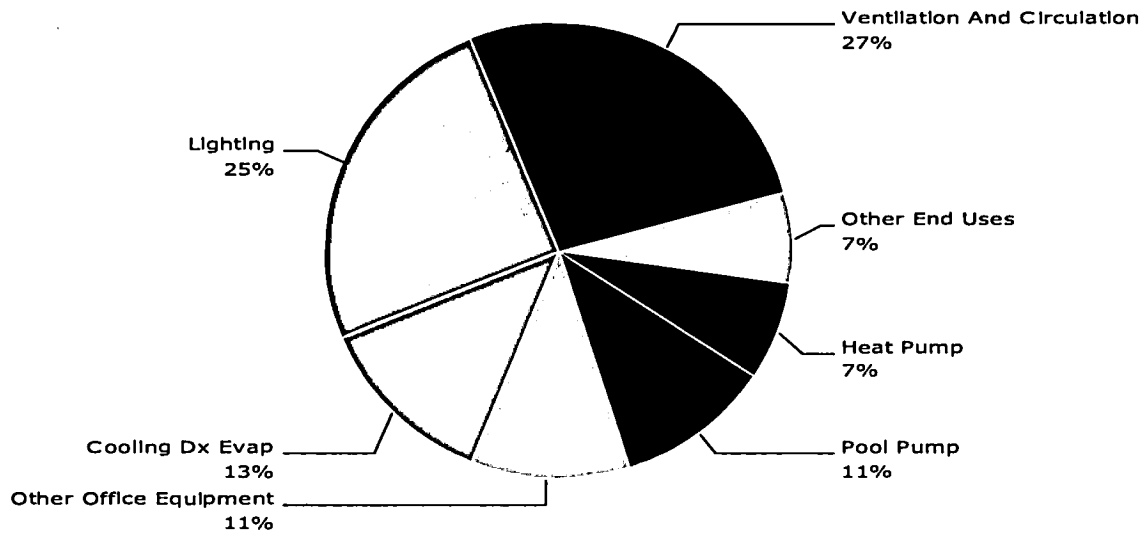


Note: 'Other End Uses' includes:

Other Office Equipment: 4%, Cooling Dx Evap: 3%, Water Heat Gt 55 Gal: 2%, Appliances: 2%, Heat Pump: 2%, Cooling: 1%, Package Terminal Ac: <1%, Cooking: <1%, Lighting Interior Hid: <1%

Figure E.12 Electric Achievable Economic Potential: Commercial Miscellaneous by End Use

Total: 64,254 MWh

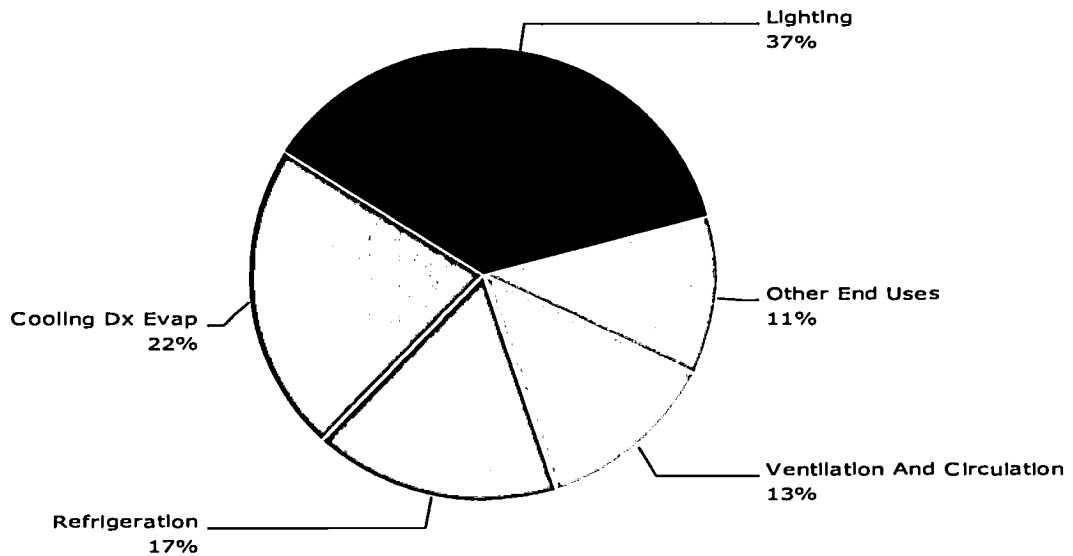


Note: 'Other End Uses' Includes:

Cooling: 2%, Appliances: 2%, Lighting Interior Hid: 1%, Water Heat Le 55 Gal: <1%, Refrigeration: <1%, Package Terminal Hp: <1%, Water Heat Gt 55 Gal: <1%, Package Terminal Ac: <1%, Cooking: <1%

Figure E.15 Electric Achievable Economic Potential: Commercial Restaurant by End Use

Total: 12,710 MWh



Note: 'Other End Uses' Includes:

Heat Pump: 3%, Appliances: 3%, Other Office Equipment: 2%, Water Heat Le 55 Gal: 2%, Water Heat Gt 55 Gal: 1%, Cooking: 1%, Lighting Interior Hid: <1%

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	17,886	15	\$4,728	75%	95%	\$0.03	551,004
Electric	Large Office	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	17,886	15	\$4,728	75%	95%	\$0.03	6,142,794
Electric	Large Office	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	118,514	15	\$29,976	15%	70%	\$0.25	0.00
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	13,992	15	\$8,949	35%	95%	\$0.08	154,365
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	13,992	15	\$8,949	35%	95%	\$0.08	154,365
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	26,366	15	\$8,949	35%	95%	\$0.04	3,727,315
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	26,366	15	\$8,949	35%	95%	\$0.04	3,727,315
Electric	Large Office	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	59,257	5	\$4,728	75%	75%	\$0.02	2,196,330
Electric	Large Office	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	59,257	5	\$4,728	75%	75%	\$0.02	23,939,538
Electric	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5%	No Repair or Sealing 15% duct losses	Per Building	Existing	9,876	18	\$18,156	45%	85%	\$0.22	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	19,707	14	\$68,614	5.0%	95%	\$0.47	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	19,707	14	\$68,614	5.0%	95%	\$0.47	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	38,267	14	\$68,614	5.0%	95%	\$0.24	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	38,267	14	\$68,614	5.0%	95%	\$0.24	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	13,992	40	\$58,919	2.0%	100%	\$1.64	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	13,992	40	\$58,919	2.0%	100%	\$1.64	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	26,366	40	\$58,919	2.0%	100%	\$0.87	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	26,366	40	\$58,919	2.0%	100%	\$0.87	0.00
Electric	Large Office	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump > 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	Existing	160,135	30	\$30,913	5.0%	N/A	\$0.91	0.00
Electric	Large Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	29,628	12	\$2,458	10%	60%	\$0.01	101,310
Electric	Large Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	29,628	12	\$2,458	10%	60%	\$0.01	1,104,263
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	15,628	25	\$13,458	45%	65%	\$0.09	1,900,431

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	15,628	25	\$13,458	45%	65%	\$0.09	1,900,431
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	29,744	25	\$13,458	45%	65%	\$0.05	334,794
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	29,744	25	\$13,458	45%	65%	\$0.05	334,794
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	3,347	25	\$6,483	25%	85%	\$0.20	256,557
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	3,347	25	\$6,483	25%	85%	\$0.20	256,557
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	6,370	25	\$6,483	25%	85%	\$0.10	44,064
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	6,370	25	\$6,483	25%	85%	\$0.10	44,064
Electric	Large Office	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	11,851	20	\$5,287	45%	60%	\$0.05	120,425
Electric	Large Office	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	11,851	20	\$5,287	45%	60%	\$0.05	1,314,880
Electric	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	7,110	20	\$938	45%	85%	\$0.01	121,903
Electric	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	7,110	20	\$938	45%	85%	\$0.01	1,328,716
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	27,783	25	\$24,026	15%	85%	\$0.09	1,519,716
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	27,783	25	\$24,026	15%	85%	\$0.09	1,519,716
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	69,084	25	\$24,026	15%	85%	\$0.04	358,242
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	69,084	25	\$24,026	15%	85%	\$0.04	358,242
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	5,473	25	\$7,413	15%	95%	\$0.14	281,873
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	5,473	25	\$7,413	15%	95%	\$0.14	281,873
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	13,455	25	\$7,413	15%	95%	\$0.06	71,575
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	13,455	25	\$7,413	15%	95%	\$0.06	71,575
Electric	Large Office	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	63,006	25	\$59,067	10%	45%	\$0.10	92,960
Electric	Large Office	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	63,006	25	\$59,067	10%	45%	\$0.10	1,155,615
Electric	Large Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	49,381	7	\$14,910	90%	95%	\$0.07	1,900,454
Electric	Large Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	49,381	7	\$14,910	90%	95%	\$0.07	20,701,961
Electric	Large Office	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	39,504	3	\$12,104	95%	50%	\$0.14	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	3,128	10	\$21,666	35%	70%	\$1.18	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	3,128	10	\$21,666	35%	70%	\$1.18	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	12,771	10	\$21,666	35%	70%	\$0.29	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	12,771	10	\$21,666	35%	70%	\$0.29	0.00
Electric	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	17,680	25	\$226	15%	90%	\$0.00	136,851
Electric	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	17,680	25	\$226	15%	90%	\$0.00	1,491,654
Electric	Large Office	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	21,957	25	\$3,442	15%	25%	\$0.02	36,650
Electric	Large Office	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	21,957	25	\$3,442	15%	25%	\$0.02	399,477

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Heat Pump	Air Source Heat Pump > 240 kBtuh - High Efficiency	High Efficiency - 10.0 EER, 3.3 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	19,467	15	\$18,897	100%	N/A	\$0.13	0.00
Electric	Large Office	Heat Pump	Air Source Heat Pump > 240 kBtuh - Premium Efficiency	Premium Efficiency - 10.5 EER, 3.4 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	37,100	15	\$40,200	100%	N/A	\$0.14	126
Electric	Large Office	Heat Pump	Air Source Heat Pump > 240 kBtuh - Premium Efficiency	Premium Efficiency - 10.5 EER, 3.4 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	37,100	15	\$40,200	100%	N/A	\$0.14	770
Electric	Large Office	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	12,652	7	\$55,981	95%	95%	\$0.98	0.00
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	13,663	15	\$8,949	35%	95%	\$0.09	25,897
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	13,663	15	\$8,949	35%	95%	\$0.09	25,897
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	25,745	15	\$8,949	35%	95%	\$0.05	411,030
Electric	Large Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	25,745	15	\$8,949	35%	95%	\$0.05	411,030
Electric	Large Office	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	57,861	5	\$4,728	0.0%	25%	\$0.02	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	19,243	14	\$68,614	5.0%	95%	\$0.49	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	19,243	14	\$68,614	5.0%	95%	\$0.49	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	37,366	14	\$68,614	5.0%	95%	\$0.25	0.00
Electric	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	37,366	14	\$68,614	5.0%	95%	\$0.25	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	13,663	40	\$58,919	2.0%	100%	\$1.68	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	13,663	40	\$58,919	2.0%	100%	\$1.68	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	25,745	40	\$58,919	2.0%	100%	\$0.89	0.00
Electric	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	25,745	40	\$58,919	2.0%	100%	\$0.89	0.00
Electric	Large Office	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump > 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	160,135	30	\$24,728	5.0%	N/A	\$0.73	0.00
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3,268	25	\$6,483	75%	85%	\$0.20	95,438
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3,268	25	\$6,483	75%	85%	\$0.20	95,438
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	6,220	25	\$6,483	75%	85%	\$0.11	19,896
Electric	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	6,220	25	\$6,483	75%	85%	\$0.11	19,896
Electric	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	6,943	20	\$938	45%	85%	\$0.02	13,644
Electric	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	6,943	20	\$938	45%	85%	\$0.02	127,036

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	5,344	25	\$7,413	15%	95%	\$0.14	34,952
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	5,344	25	\$7,413	15%	95%	\$0.14	34,952
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	13,138	25	\$7,413	15%	95%	\$0.06	9,552
Electric	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	13,138	25	\$7,413	15%	95%	\$0.06	9,552
Electric	Large Office	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	5,690	25	\$6,180	95%	85%	\$0.11	22,818
Electric	Large Office	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	5,690	25	\$6,180	95%	85%	\$0.11	218,277
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	3,128	10	\$21,666	0.0%	0%	\$1.18	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	3,128	10	\$21,666	0.0%	0%	\$1.18	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	12,771	10	\$21,666	0.0%	0%	\$0.29	0.00
Electric	Large Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	12,771	10	\$21,666	0.0%	0%	\$0.29	0.00
Electric	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	17,263	25	\$226	80%	90%	\$0.00	83,526
Electric	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	17,263	25	\$226	80%	90%	\$0.00	777,674
Electric	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	8,361	8	\$1,089	75%	70%	\$0.03	7,819,204
Electric	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	8,361	8	\$1,089	75%	70%	\$0.03	8,310,180
Electric	Large Office	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	6,944	15	\$3,774	62%	90%	\$0.07	0.00
Electric	Large Office	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,970	8	\$5,567	90%	75%	\$0.37	0.00
Electric	Large Office	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	7,085	8	\$1,974	5.0%	50%	\$0.06	0.00
Electric	Large Office	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	13,783	17	\$9,365	75%	50%	\$0.08	0.00
Electric	Large Office	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	2,893	8	\$590	25%	25%	\$0.04	0.00
Electric	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	8,361	8	\$1,089	75%	70%	\$0.03	868,154
Electric	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	8,361	8	\$1,089	75%	70%	\$0.03	1,049,349
Electric	Large Office	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	6,944	15	\$3,774	62%	90%	\$0.07	0.00
Electric	Large Office	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,970	8	\$5,567	90%	75%	\$0.37	0.00
Electric	Large Office	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	7,085	8	\$1,974	5.0%	50%	\$0.06	0.00
Electric	Large Office	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	13,783	17	\$9,365	75%	50%	\$0.08	0.00
Electric	Large Office	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	5,379	10	\$2,534	75%	75%	\$0.08	0.00
Electric	Large Office	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	15,270	8	\$12,784	30%	80%	\$0.17	0.00
Electric	Large Office	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	11,452	8	\$9,592	30%	80%	\$0.17	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	36,377	13	\$99,231	50%	N/A	\$0.80	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	36,377	13	\$99,231	50%	N/A	\$0.80	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	37,780	13	\$98,793	50%	N/A	\$0.77	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	37,780	13	\$98,793	50%	N/A	\$0.77	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,145	13	\$5,038	100%	N/A	\$0.11	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,145	13	\$5,038	100%	N/A	\$0.11	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,459	13	\$5,809	100%	N/A	\$0.12	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,459	13	\$5,809	100%	N/A	\$0.12	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	14,970	13	\$10,106	100%	N/A	\$0.11	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	14,970	13	\$10,106	100%	N/A	\$0.11	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	15,547	13	\$10,886	100%	N/A	\$0.11	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	15,547	13	\$10,886	100%	N/A	\$0.11	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	16,934	13	\$30,706	100%	N/A	\$0.32	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	16,934	13	\$30,706	100%	N/A	\$0.32	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	17,587	13	\$33,225	100%	N/A	\$0.33	0.00
Electric	Large Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	17,587	13	\$33,225	100%	N/A	\$0.33	0.00
Electric	Large Office	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	20,710	8	\$5,567	75%	75%	\$0.05	18,397,252
Electric	Large Office	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	20,710	8	\$5,567	75%	75%	\$0.05	20,305,015
Electric	Large Office	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	20,172	8	\$590	5.0%	25%	\$0.01	478,972

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	20,172	8	\$590	5.0%	25%	\$0.01	528,640
Electric	Large Office	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,832	15	\$1,210	100%	N/A	\$0.10	0.00
Electric	Large Office	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	2,393	15	\$4,962	95%	N/A	\$0.27	0.00
Electric	Large Office	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	2,027	25	\$36,455	50%	N/A	\$1.79	0.00
Electric	Large Office	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,233	17	\$52	25%	N/A	\$-0.03	97,217
Electric	Large Office	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,233	17	\$52	25%	N/A	\$-0.03	99,662
Electric	Large Office	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	555	15	\$23,058	100%	N/A	\$5.28	0.00
Electric	Large Office	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	793	8	\$5,567	75%	75%	\$1.40	0.00
Electric	Large Office	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	773	8	\$590	10%	25%	\$0.15	0.00
Electric	Large Office	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	712	11	\$279	95%	65%	\$0.06	783,906
Electric	Large Office	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	712	11	\$279	95%	65%	\$0.06	833,067
Electric	Large Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	142	13	\$121	95%	95%	\$0.12	0.00
Electric	Large Office	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	4,561	10	\$2,534	75%	75%	\$0.09	0.00
Electric	Large Office	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	11,330	8	\$12,784	30%	80%	\$0.23	0.00
Electric	Large Office	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Oay-Lighting)	No Dimming Controls	Per Building	New	8,497	8	\$9,592	30%	80%	\$0.23	0.00
Electric	Large Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	142	13	\$121	95%	95%	\$0.12	0.00
Electric	Large Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	20,527	13	\$28,845	100%	N/A	\$0.20	0.00
Electric	Large Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	20,527	13	\$28,845	100%	N/A	\$0.20	0.00
Electric	Large Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	25,089	13	\$29,639	100%	N/A	\$0.17	0.00
Electric	Large Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	25,089	13	\$29,639	100%	N/A	\$0.17	0.00
Electric	Large Office	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	17,562	8	\$5,567	75%	75%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	31,414	4	\$287	85%	N/A	\$-0.02	0.00
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	31,414	4	\$287	85%	N/A	\$-0.02	0.00
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	51,566	4	\$469	85%	N/A	\$-0.02	0.00
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	51,566	4	\$469	85%	N/A	\$-0.02	0.00
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	26,263	1	\$83	100%	N/A	\$0.01	0.00
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	43,110	1	\$143	100%	N/A	\$0.01	0.00
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	31,653	12	\$7,285	85%	N/A	\$0.02	4,767,607
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	31,653	12	\$7,285	85%	N/A	\$0.02	4,767,607
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	51,958	12	\$11,967	85%	N/A	\$0.02	7,641,775
Electric	Large Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	51,958	12	\$11,967	85%	N/A	\$0.02	7,641,775
Electric	Large Office	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,901	8	\$5,567	75%	75%	\$0.38	0.00
Electric	Large Office	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	2,826	8	\$590	1.0%	25%	\$0.04	3,484
Electric	Large Office	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	2,826	8	\$590	1.0%	25%	\$0.04	5,382
Electric	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	12	7	\$7	10%	90%	\$0.13	0.00
Electric	Large Office	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	487	4	\$0.00	75%	45%	\$0.00	0.00
Electric	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	393	10	\$7	95%	75%	\$0.00	580,968
Electric	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	393	10	\$7	95%	75%	\$0.00	632,068
Electric	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	6,082	4	\$1,210	60%	90%	\$0.07	0.00
Electric	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	12	7	\$7	10%	90%	\$0.13	0.00
Electric	Large Office	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	487	4	\$0.00	75%	45%	\$0.00	0.00
Electric	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	393	10	\$7	95%	75%	\$0.00	65,947

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	393	10	\$7	95%	75%	\$0.00	77,879
Electric	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	6,082	4	\$1,210	60%	90%	\$0.07	0.00
Electric	Large Office	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	860	6	\$1,074	100%	N/A	\$0.31	0.00
Electric	Large Office	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	860	6	\$1,074	100%	N/A	\$0.31	48
Electric	Large Office	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	860	6	\$1,074	100%	N/A	\$0.31	73
Electric	Large Office	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	4,225	6	\$620	100%	N/A	\$0.04	57,095
Electric	Large Office	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	4,225	6	\$620	100%	N/A	\$0.04	102,286
Electric	Large Office	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	4,225	6	\$620	100%	N/A	\$0.04	0.00
Electric	Large Office	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	802	20	\$2,186	100%	N/A	\$0.31	0.00
Electric	Large Office	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	899	20	\$2,927	100%	N/A	\$0.37	0.00
Electric	Large Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	705	20	\$173	100%	N/A	\$0.03	127,812
Electric	Large Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	705	20	\$173	100%	N/A	\$0.03	137,288
Electric	Large Office	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	224	20	\$75	100%	N/A	\$0.04	0.00
Electric	Large Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,502	20	\$582	8.8%	100%	\$0.01	660,402
Electric	Large Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,502	20	\$582	8.8%	100%	\$0.01	660,402
Electric	Large Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,614	20	\$559	8.8%	100%	\$0.01	733,140
Electric	Large Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,614	20	\$559	8.8%	100%	\$0.01	733,140
Electric	Large Office	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	802	20	\$2,186	100%	N/A	\$0.31	0.00
Electric	Large Office	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	899	20	\$2,927	100%	N/A	\$0.37	0.00
Electric	Large Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	705	20	\$173	100%	N/A	\$0.03	58,752
Electric	Large Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	705	20	\$173	100%	N/A	\$0.03	60,224
Electric	Large Office	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	224	20	\$75	100%	N/A	\$0.04	0.00
Electric	Large Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	212	15	\$8,949	35%	95%	\$5.52	0.00
Electric	Large Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	269	15	\$8,949	35%	95%	\$4.33	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	388	15	\$78,019	0.5%	65%	\$59.88	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	494	15	\$78,019	0.5%	65%	\$47.03	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	388	15	\$47,033	0.5%	65%	\$49.46	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	494	15	\$47,033	0.5%	65%	\$38.84	0.00
Electric	Large Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	212	40	\$58,919	2.0%	100%	\$108.39	0.00
Electric	Large Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	269	40	\$58,919	2.0%	100%	\$85.13	0.00
Electric	Large Office	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	106	12	\$2,458	10%	60%	\$3.48	866
Electric	Large Office	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	134	12	\$2,458	10%	60%	\$2.73	0.00
Electric	Large Office	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$13,458	45%	65%	\$398.55	134
Electric	Large Office	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4	25	\$13,458	45%	65%	\$313.03	0.00
Electric	Large Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.73	25	\$6,483	25%	85%	\$896.45	0.00
Electric	Large Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.93	25	\$6,483	25%	85%	\$704.10	0.00
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	198	9	\$52	100%	N/A	\$0.05	3,143
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	198	9	\$52	100%	N/A	\$0.05	3,143
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	252	9	\$52	100%	N/A	\$0.04	7,062
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	252	9	\$52	100%	N/A	\$0.04	7,062
Electric	Large Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	267	25	\$226	15%	90%	\$0.09	4,906
Electric	Large Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	340	25	\$226	15%	90%	\$0.07	3,806
Electric	Large Office	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	244	25	\$3,442	15%	25%	\$1.44	0.00
Electric	Large Office	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	310	25	\$3,442	15%	25%	\$1.13	0.00
Electric	Large Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	212	15	\$8,949	35%	95%	\$5.52	0.00
Electric	Large Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	269	15	\$8,949	35%	95%	\$4.33	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	388	15	\$42,411	0.5%	65%	\$47.90	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	494	15	\$42,411	0.5%	65%	\$37.62	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	388	15	\$17,628	0.5%	65%	\$39.57	0.00
Electric	Large Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	494	15	\$17,628	0.5%	65%	\$31.08	0.00

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	212	40	\$58,919	2.0%	100%	\$108.39	0.00
Electric	Large Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	269	40	\$58,919	2.0%	100%	\$85.13	0.00
Electric	Large Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.73	25	\$6,483	75%	85%	\$896.45	0.00
Electric	Large Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.93	25	\$6,483	75%	85%	\$704.10	0.00
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	198	9	\$52	100%	N/A	\$0.05	1,074
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	198	9	\$52	100%	N/A	\$0.05	1,074
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	252	9	\$52	100%	N/A	\$0.04	1,622
Electric	Large Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	252	9	\$52	100%	N/A	\$0.04	1,622
Electric	Large Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	267	25	\$226	80%	90%	\$0.09	2,608
Electric	Large Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	340	25	\$226	80%	90%	\$0.07	2,359
Electric	Large Office	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	23,962	15	\$47,093	0.5%	65%	\$0.80	0.00
Electric	Large Office	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,860	12	\$2,458	10%	60%	\$0.10	0.00
Electric	Large Office	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4,492	25	\$13,458	45%	65%	\$0.31	0.00
Electric	Large Office	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	962	25	\$6,483	25%	85%	\$0.69	0.00
Electric	Large Office	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	9,281	25	\$24,026	15%	85%	\$0.26	0.00
Electric	Large Office	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,727	25	\$7,413	15%	95%	\$0.44	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	4,678	25	\$59,067	10%	45%	\$1.29	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	4,678	25	\$59,067	10%	45%	\$1.29	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	12,274	25	\$59,067	10%	45%	\$0.49	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	12,274	25	\$59,067	10%	45%	\$0.49	0.00
Electric	Large Office	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	23,962	15	\$871	0.5%	65%	\$0.55	0.00
Electric	Large Office	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	962	25	\$6,483	75%	85%	\$0.69	0.00
Electric	Large Office	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,727	25	\$7,413	15%	95%	\$0.44	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	4,678	25	\$6,180	95%	85%	\$0.13	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	4,678	25	\$6,180	95%	85%	\$0.13	0.00
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	12,274	25	\$6,180	95%	85%	\$0.05	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	12,274	25	\$6,180	95%	85%	\$0.05	0.00
Electric	Large Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	866	9	\$113	100%	N/A	\$0.02	920,897
Electric	Large Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	866	9	\$113	100%	N/A	\$0.02	937,066
Electric	Large Office	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	Existing	2,979	4	\$11,165	10%	65%	\$1.32	0.00
Electric	Large Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	866	9	\$113	100%	N/A	\$0.02	120,068
Electric	Large Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	866	9	\$113	100%	N/A	\$0.02	139,586
Electric	Large Office	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	New	2,968	4	\$11,165	10%	65%	\$1.33	0.00
Electric	Large Office	Space Heat	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	2,819	15	\$4,728	75%	95%	\$0.22	0.00
Electric	Large Office	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	16,914	15	\$29,976	15%	70%	\$1.78	0.00
Electric	Large Office	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	8,457	5	\$4,728	75%	75%	\$0.16	0.00
Electric	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	1,409	18	\$18,156	45%	85%	\$1.52	0.00
Electric	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	8,457	14	\$68,614	5.0%	95%	\$1.11	0.00
Electric	Large Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	5,638	12	\$2,458	10%	60%	\$0.07	0.00
Electric	Large Office	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,562	25	\$13,458	45%	65%	\$0.21	0.00
Electric	Large Office	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1,405	25	\$6,483	25%	85%	\$0.47	0.00
Electric	Large Office	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,691	20	\$5,287	45%	60%	\$0.35	0.00
Electric	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	1,014	20	\$938	45%	85%	\$0.10	0.00
Electric	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	13,557	25	\$24,026	15%	85%	\$0.18	0.00
Electric	Large Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	2,523	25	\$7,413	15%	95%	\$0.30	0.00
Electric	Large Office	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	17,928	25	\$59,067	10%	45%	\$0.34	0.00
Electric	Large Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	7,047	7	\$14,910	90%	95%	\$0.47	0.00
Electric	Large Office	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,849	7	\$55,981	95%	95%	\$6.71	0.00
Electric	Large Office	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	8,457	5	\$4,728	0.0%	25%	\$0.16	0.00
Electric	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	8,457	14	\$68,614	5.0%	95%	\$1.11	0.00
Electric	Large Office	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1,405	25	\$6,483	75%	85%	\$0.47	0.00
Electric	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	1,014	20	\$938	45%	85%	\$0.10	0.00
Electric	Large Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	2,523	25	\$7,413	15%	95%	\$0.30	0.00
Electric	Large Office	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	6,834	25	\$6,180	95%	85%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	2,823	10	\$385	100%	N/A	\$0.02	1,619,519
Electric	Large Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	2,823	10	\$385	100%	N/A	\$0.02	1,672,703
Electric	Large Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	2,823	10	\$385	100%	N/A	\$0.02	295,514
Electric	Large Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	2,823	10	\$385	100%	N/A	\$0.02	342,780
Electric	Large Office	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	35,952	10	\$9,274	5.0%	90%	\$0.04	1,382,505
Electric	Large Office	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	35,952	10	\$9,274	5.0%	90%	\$0.04	1,962,112
Electric	Large Office	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	53,928	15	\$29,976	15%	70%	\$0.56	0.00
Electric	Large Office	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	1,833	15	\$499	95%	90%	\$0.04	1,351,433
Electric	Large Office	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	1,833	15	\$499	95%	90%	\$0.04	1,918,014
Electric	Large Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	45,839	20	\$8,427	55%	65%	\$0.02	15,543,842
Electric	Large Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	45,839	20	\$8,427	55%	65%	\$0.02	22,060,508
Electric	Large Office	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	1,335	7	\$378	65%	25%	\$0.06	183,817
Electric	Large Office	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	1,335	7	\$378	65%	25%	\$0.06	260,882
Electric	Large Office	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	35,952	10	\$9,274	5.0%	90%	\$0.04	148,696
Electric	Large Office	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	35,952	10	\$9,274	5.0%	90%	\$0.04	271,141
Electric	Large Office	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	1,833	15	\$499	95%	90%	\$0.04	141,629
Electric	Large Office	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	1,833	15	\$499	95%	90%	\$0.04	259,384
Electric	Large Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	45,839	20	\$8,427	55%	45%	\$0.02	1,068,954

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	45,839	20	\$8,427	55%	45%	\$0.02	1,783,925
Electric	Large Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	870	10	\$21,015	55%	80%	\$4.10	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	13	12	\$37	95%	35%	\$0.41	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	174	12	\$302	75%	75%	\$0.26	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	3,482	25	\$9,403	2.5%	95%	\$0.28	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	672	9	\$7	95%	75%	\$0.00	109,061
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	672	9	\$7	95%	75%	\$0.00	116,451
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	277	9	\$0.00	95%	50%	\$0.00	29,938
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	277	9	\$0.00	95%	50%	\$0.00	31,966
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	104	9	\$22	95%	25%	\$0.04	4,697
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	104	9	\$22	95%	25%	\$0.04	5,016
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$22	95%	85%	\$0.02	34,241
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$22	95%	85%	\$0.02	36,561
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$60	95%	25%	\$0.06	8,122
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$60	95%	25%	\$0.06	8,672
Electric	Large Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	435	10	\$385	75%	85%	\$0.15	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	10,395	15	\$3,782	75%	N/A	\$0.06	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	10,273	15	\$2,261	75%	N/A	\$0.04	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	863	10	\$21,015	55%	80%	\$4.14	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	13	12	\$37	95%	35%	\$0.41	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	3,453	25	\$7,519	2.5%	95%	\$0.22	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	667	9	\$7	95%	75%	\$0.00	8,198
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	667	9	\$7	95%	75%	\$0.00	10,100
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	274	9	\$0.00	95%	50%	\$0.00	2,250

Table F.2. Commercial Water Heating Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	274	9	\$0.00	95%	50%	\$0.00	2,772
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$22	95%	85%	\$0.02	2,595
Electric	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$22	95%	85%	\$0.02	3,197
Electric	Large Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	431	10	\$385	75%	85%	\$0.15	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	10,395	15	\$3,782	75%	N/A	\$0.06	0.00
Electric	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	10,273	15	\$2,261	75%	N/A	\$0.04	0.00
Electric	Large Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	909	10	\$21,015	75%	80%	\$3.92	0.00
Electric	Large Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	13	12	\$37	75%	35%	\$0.41	0.00
Electric	Large Office	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	181	12	\$302	75%	75%	\$0.25	0.00
Electric	Large Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	3,639	25	\$9,403	2.5%	95%	\$0.26	0.00
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	703	9	\$7	95%	75%	\$0.00	298,442
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	703	9	\$7	95%	75%	\$0.00	318,667
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	289	9	\$0.00	95%	50%	\$0.00	81,925
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	289	9	\$0.00	95%	50%	\$0.00	87,477
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	109	9	\$22	95%	25%	\$0.04	12,855
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	109	9	\$22	95%	25%	\$0.04	13,727
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$22	95%	85%	\$0.02	89,659
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$22	95%	85%	\$0.02	95,735
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$60	95%	25%	\$0.06	21,267
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$60	95%	25%	\$0.06	22,709
Electric	Large Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	454	10	\$385	75%	85%	\$0.14	0.00
Electric	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	9,614	15	\$19,457	75%	N/A	\$0.30	0.00
Electric	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	562	15	\$847	100%	N/A	\$0.20	0.00
Electric	Large Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	882	10	\$21,015	75%	80%	\$4.05	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	13	12	\$37	75%	35%	\$0.41	0.00
Electric	Large Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	3,530	25	\$7,519	2.5%	95%	\$0.22	0.00
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	681	9	\$7	95%	75%	\$0.00	31,041
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	681	9	\$7	95%	75%	\$0.00	38,082
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	280	9	\$0.00	95%	50%	\$0.00	8,521
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	280	9	\$0.00	95%	50%	\$0.00	10,454
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$22	95%	85%	\$0.02	9,613
Electric	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$22	95%	85%	\$0.02	11,794
Electric	Large Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	441	10	\$385	75%	85%	\$0.15	0.00
Electric	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	9,614	15	\$19,457	75%	N/A	\$0.30	77
Electric	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	9,614	15	\$19,457	75%	N/A	\$0.30	172
Electric	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	562	15	\$847	100%	N/A	\$0.20	-132.33732
Electric	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	562	15	\$847	100%	N/A	\$0.20	-14.556492
Electric	Large Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	1,102	4	\$125	100%	N/A	\$0.04	716,001
Electric	Large Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	1,102	4	\$125	100%	N/A	\$0.04	783,543
Electric	Large Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	1,102	4	\$125	100%	N/A	\$0.04	210,375
Electric	Large Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	1,102	4	\$125	100%	N/A	\$0.04	244,816
Electric	Large Retail	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	16	12	\$8	7.0%	90%	\$0.08	0.00
Electric	Large Retail	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	10	12	\$26	7.0%	70%	\$0.38	0.00
Electric	Large Retail	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	18	12	\$8	7.0%	55%	\$0.07	2,211
Electric	Large Retail	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	18	12	\$8	7.0%	55%	\$0.07	4,868
Electric	Large Retail	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	26	12	\$17	15%	85%	\$0.10	0.00
Electric	Large Retail	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	44	12	\$22	11%	75%	\$0.08	0.00
Electric	Large Retail	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	16	12	\$8	7.0%	90%	\$0.08	0.00
Electric	Large Retail	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	10	12	\$26	7.0%	70%	\$0.38	0.00
Electric	Large Retail	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	18	12	\$8	7.0%	55%	\$0.07	295

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	18	12	\$8	7.0%	55%	\$0.07	505
Electric	Large Retail	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	26	12	\$17	15%	85%	\$0.10	0.00
Electric	Large Retail	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	44	12	\$22	11%	75%	\$0.08	0.00
Electric	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	3,469	15	\$594	25%	95%	\$0.02	2,621,230
Electric	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	3,664	15	\$594	25%	95%	\$0.02	2,646,914
Electric	Large Retail	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	64,157	15	\$35,799	15%	70%	\$0.28	0.00
Electric	Large Retail	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	67,773	15	\$35,799	15%	70%	\$0.26	0.00
Electric	Large Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	21,385	15	\$8,902	80%	95%	\$0.05	43,079,557
Electric	Large Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	22,591	15	\$8,902	80%	95%	\$0.05	43,501,676
Electric	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBtu/h - High Efficiency	High Efficiency - 10.5 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	11,945	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBtu/h - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	18,582	15	\$18,944	100%	N/A	\$0.13	0.00
Electric	Large Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	32,078	10	\$37,992	10%	80%	\$0.20	0.00
Electric	Large Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	33,886	10	\$37,992	10%	80%	\$0.19	0.00
Electric	Large Retail	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	32,078	5	\$2,791	75%	75%	\$0.03	78,022,221
Electric	Large Retail	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	33,886	5	\$2,791	75%	75%	\$0.02	78,786,730
Electric	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	5,346	18	\$10,721	45%	85%	\$0.24	0.00
Electric	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	5,647	18	\$10,721	45%	85%	\$0.22	0.00
Electric	Large Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtu/h - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	150,516	15	\$-128187.9	35%	N/A	\$-0.14	40,530,063
Electric	Large Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtu/h - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	150,516	15	\$-128187.9	35%	N/A	\$-0.14	42,427,177
Electric	Large Retail	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	9,623	12	\$5,454	2.5%	85%	\$0.09	486,364
Electric	Large Retail	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	10,165	12	\$5,454	2.5%	85%	\$0.08	491,130

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	21,385	40	\$57,653	2.0%	100%	\$1.07	0.00
Electric	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	22,591	40	\$57,653	2.0%	100%	\$1.01	0.00
Electric	Large Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	10,692	12	\$1,250	10%	60%	\$0.02	1,882,898
Electric	Large Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	11,295	12	\$1,250	10%	60%	\$0.02	1,901,348
Electric	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	826	25	\$13,396	45%	65%	\$1.65	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	872	25	\$13,396	45%	65%	\$1.56	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	74	25	\$6,441	25%	85%	\$8.83	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	78	25	\$6,441	25%	85%	\$8.36	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,415	20	\$6,088	45%	60%	\$0.11	3,785,396
Electric	Large Retail	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,777	20	\$6,088	45%	60%	\$0.10	3,822,488
Electric	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	3,849	20	\$1,067	45%	85%	\$0.03	3,929,723
Electric	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	4,066	20	\$1,067	45%	85%	\$0.03	3,968,229
Electric	Large Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	26,732	7	\$8,804	90%	95%	\$0.07	67,826,609
Electric	Large Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	28,238	7	\$8,804	90%	95%	\$0.07	68,491,216
Electric	Large Retail	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	21,385	5	\$10,721	95%	50%	\$0.15	0.00
Electric	Large Retail	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	22,591	5	\$10,721	95%	50%	\$0.14	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	6,125	10	\$11,029	35%	70%	\$0.31	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	6,125	10	\$11,029	35%	70%	\$0.31	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	9,244	10	\$11,029	35%	70%	\$0.20	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	9,244	10	\$11,029	35%	70%	\$0.20	0.00
Electric	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	26,982	25	\$116	15%	90%	\$0.00	13,826,604
Electric	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	28,503	25	\$116	15%	90%	\$0.00	13,962,086
Electric	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	24,611	25	\$1,751	15%	25%	\$0.01	3,443,488
Electric	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	25,998	25	\$1,751	15%	25%	\$0.01	3,477,230
Electric	Large Retail	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	6,843	7	\$33,056	95%	95%	\$1.07	0.00
Electric	Large Retail	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	7,220	7	\$33,056	95%	95%	\$1.02	0.00
Electric	Large Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	20,864	15	\$8,902	80%	95%	\$0.06	3,131,003
Electric	Large Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	22,014	15	\$8,902	80%	95%	\$0.05	4,388,972

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBtuh - High Efficiency	High Efficiency - 10.5 EER	Standard Efficiency - 10.0 EER	Per Building	New	11,945	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBtuh - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	New	18,582	15	\$15,156	100%	N/A	\$0.11	0.00
Electric	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBtuh - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	New	18,582	15	\$15,156	100%	N/A	\$0.11	1,674,065
Electric	Large Retail	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	31,296	5	\$2,791	25%	25%	\$0.03	595,238
Electric	Large Retail	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	33,021	5	\$2,791	25%	25%	\$0.02	837,753
Electric	Large Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	New	150,516	15	-\$97695.477	35%	N/A	-\$0.11	6,305,873
Electric	Large Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	New	150,516	15	-\$97695.477	35%	N/A	-\$0.11	19,333,784
Electric	Large Retail	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	9,388	12	\$5,454	2.5%	85%	\$0.09	40,435
Electric	Large Retail	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	9,906	12	\$5,454	2.5%	85%	\$0.08	56,910
Electric	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	20,864	40	\$57,653	2.0%	100%	\$1.10	0.00
Electric	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	22,014	40	\$57,653	2.0%	100%	\$1.04	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	72	25	\$6,441	75%	85%	\$9.05	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	76	25	\$6,441	75%	85%	\$8.58	0.00
Electric	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	3,755	20	\$1,067	45%	85%	\$0.03	254,389
Electric	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	3,962	20	\$1,067	45%	85%	\$0.03	391,375
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	6,125	10	\$11,029	0.0%	0%	\$0.31	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	6,125	10	\$11,029	0.0%	0%	\$0.31	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	9,244	10	\$11,029	0.0%	0%	\$0.20	0.00
Electric	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	9,244	10	\$11,029	0.0%	0%	\$0.20	0.00
Electric	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	26,324	25	\$116	80%	90%	\$0.00	4,717,554
Electric	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	27,775	25	\$116	80%	90%	\$0.00	7,257,902
Electric	Large Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	47	6	\$4	100%	N/A	\$0.02	229,264
Electric	Large Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	47	6	\$4	100%	N/A	\$0.02	232,104
Electric	Large Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	47	6	\$4	100%	N/A	\$0.02	34,633
Electric	Large Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	47	6	\$4	100%	N/A	\$0.02	40,793
Electric	Large Retail	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	148	4	\$169	100%	N/A	\$0.40	0.00
Electric	Large Retail	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	148	4	\$169	100%	N/A	\$0.40	24

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	148	4	\$169	100%	N/A	\$0.40	34
Electric	Large Retail	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	1	20	\$0.00	100%	N/A	\$0.00	0.00
Electric	Large Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	4	20	\$0.00	100%	N/A	\$0.00	9,421
Electric	Large Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	4	20	\$0.00	100%	N/A	\$0.00	-172.551852
Electric	Large Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	33	20	\$4	8.8%	100%	\$0.02	20,514
Electric	Large Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	33	20	\$4	8.8%	100%	\$0.02	20,514
Electric	Large Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	39	20	\$4	8.8%	100%	\$0.01	22,505
Electric	Large Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	39	20	\$4	8.8%	100%	\$0.01	22,505
Electric	Large Retail	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	1	20	\$0.00	100%	N/A	\$0.00	0.00
Electric	Large Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	4	20	\$0.00	100%	N/A	\$0.00	3,269
Electric	Large Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	4	20	\$0.00	100%	N/A	\$0.00	-22.405452
Electric	Large Retail	Heat Pump	Air Source Heat Pump > 240 kBtuh - High Efficiency	High Efficiency - 10.0 EER, 3.3 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	Existing	12,739	15	\$20,928	100%	N/A	\$0.21	0.00
Electric	Large Retail	Heat Pump	Air Source Heat Pump > 240 kBtuh - Premium Efficiency	Premium Efficiency - 10.5 EER, 3.4 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	Existing	24,274	15	\$44,514	100%	N/A	\$0.24	0.00
Electric	Large Retail	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	4,797	15	\$594	25%	95%	\$0.02	0.00
Electric	Large Retail	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	4,797	15	\$594	25%	95%	\$0.02	651,814
Electric	Large Retail	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	79,463	15	\$35,799	15%	70%	\$0.22	0.00
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	11,919	15	\$8,902	80%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	11,919	15	\$8,902	80%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	16,161	15	\$8,902	80%	95%	\$0.07	5,102,009
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	16,161	15	\$8,902	80%	95%	\$0.07	5,102,009
Electric	Large Retail	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	39,731	5	\$2,791	75%	75%	\$0.02	0.00
Electric	Large Retail	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	39,731	5	\$2,791	75%	75%	\$0.02	17,369,872

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	6,621	18	\$10,721	45%	85%	\$0.19	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	15,489	14	\$40,516	5.0%	95%	\$0.36	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	15,489	14	\$40,516	5.0%	95%	\$0.36	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	21,852	14	\$40,516	5.0%	95%	\$0.25	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	21,852	14	\$40,516	5.0%	95%	\$0.25	0.00
Electric	Large Retail	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	11,919	12	\$5,454	2.5%	85%	\$0.07	0.00
Electric	Large Retail	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	11,919	12	\$5,454	2.5%	85%	\$0.07	114,505
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	11,919	40	\$57,653	2.0%	100%	\$1.92	0.00
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	11,919	40	\$57,653	2.0%	100%	\$1.92	0.00
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	16,161	40	\$57,653	2.0%	100%	\$1.42	0.00
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	16,161	40	\$57,653	2.0%	100%	\$1.42	0.00
Electric	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump > 240 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	Existing	104,989	30	\$55,988	5.0%	N/A	\$1.23	0.00
Electric	Large Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	19,865	12	\$1,250	10%	60%	\$0.01	0.00
Electric	Large Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	19,865	12	\$1,250	10%	60%	\$0.01	797,478
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	20,697	25	\$13,396	45%	65%	\$0.07	2,884,213
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	20,697	25	\$13,396	45%	65%	\$0.07	2,884,213
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	28,779	25	\$13,396	45%	65%	\$0.05	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	28,779	25	\$13,396	45%	65%	\$0.05	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	2,614	25	\$6,441	25%	85%	\$0.25	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	2,614	25	\$6,441	25%	85%	\$0.25	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	3,651	25	\$6,441	25%	85%	\$0.18	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	3,651	25	\$6,441	25%	85%	\$0.18	0.00
Electric	Large Retail	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	7,946	20	\$6,088	45%	60%	\$0.09	0.00
Electric	Large Retail	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	7,946	20	\$6,088	45%	60%	\$0.09	849,876
Electric	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	4,767	20	\$1,067	45%	85%	\$0.03	0.00
Electric	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	4,767	20	\$1,067	45%	85%	\$0.03	874,863

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	23,692	25	\$23,907	15%	85%	\$0.10	1,186,900
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	23,692	25	\$23,907	15%	85%	\$0.10	1,186,900
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	37,852	25	\$23,907	15%	85%	\$0.06	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	37,852	25	\$23,907	15%	85%	\$0.06	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	4,648	25	\$7,375	15%	95%	\$0.16	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	4,648	25	\$7,375	15%	95%	\$0.16	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	7,385	25	\$7,375	15%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	7,385	25	\$7,375	15%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	42,245	25	\$58,778	10%	45%	\$0.14	0.00
Electric	Large Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	33,109	7	\$8,804	90%	95%	\$0.06	0.00
Electric	Large Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	33,109	7	\$8,804	90%	95%	\$0.06	15,968,541
Electric	Large Retail	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	26,487	3	\$10,721	95%	50%	\$0.18	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	2,756	10	\$11,029	35%	70%	\$0.68	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	2,756	10	\$11,029	35%	70%	\$0.68	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	5,640	10	\$11,029	35%	70%	\$0.33	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	5,640	10	\$11,029	35%	70%	\$0.33	0.00
Electric	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	16,416	25	\$116	15%	90%	\$0.00	0.00
Electric	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	16,416	25	\$116	15%	90%	\$0.00	1,499,094
Electric	Large Retail	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	18,056	25	\$1,751	15%	25%	\$0.01	0.00
Electric	Large Retail	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	18,056	25	\$1,751	15%	25%	\$0.01	454,179
Electric	Large Retail	Heat Pump	Air Source Heat Pump > 240 kBtuh - High Efficiency	High Efficiency - 10.0 EER, 3.3 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	12,739	15	\$16,742	100%	N/A	\$0.17	0.00
Electric	Large Retail	Heat Pump	Air Source Heat Pump > 240 kBtuh - Premium Efficiency	Premium Efficiency - 10.5 EER, 3.4 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	24,274	15	\$35,611	100%	N/A	\$0.19	533
Electric	Large Retail	Heat Pump	Air Source Heat Pump > 240 kBtuh - Premium Efficiency	Premium Efficiency - 10.5 EER, 3.4 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	24,274	15	\$35,611	100%	N/A	\$0.19	0.00
Electric	Large Retail	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	8,426	7	\$33,056	95%	95%	\$0.87	0.00
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	11,560	15	\$8,902	80%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	11,560	15	\$8,902	80%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	15,674	15	\$8,902	80%	95%	\$0.07	616,472
Electric	Large Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	15,674	15	\$8,902	80%	95%	\$0.07	616,472

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	38,535	5	\$2,791	25%	25%	\$0.02	0.00
Electric	Large Retail	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	38,535	5	\$2,791	25%	25%	\$0.02	193,039
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	15,022	14	\$40,516	5.0%	95%	\$0.37	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	15,022	14	\$40,516	5.0%	95%	\$0.37	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	21,194	14	\$40,516	5.0%	95%	\$0.26	0.00
Electric	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	21,194	14	\$40,516	5.0%	95%	\$0.26	0.00
Electric	Large Retail	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	11,560	12	\$5,454	2.5%	85%	\$0.07	0.00
Electric	Large Retail	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	11,560	12	\$5,454	2.5%	85%	\$0.07	14,192
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	11,560	40	\$57,653	2.0%	100%	\$1.98	0.00
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	11,560	40	\$57,653	2.0%	100%	\$1.98	0.00
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	15,674	40	\$57,653	2.0%	100%	\$1.46	0.00
Electric	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	15,674	40	\$57,653	2.0%	100%	\$1.46	0.00
Electric	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump > 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	New	104,989	30	\$84,790	5.0%	N/A	\$0.99	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	2,536	25	\$6,441	75%	85%	\$0.26	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	2,536	25	\$6,441	75%	85%	\$0.26	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3,541	25	\$6,441	75%	85%	\$0.19	0.00
Electric	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3,541	25	\$6,441	75%	85%	\$0.19	0.00
Electric	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	4,624	20	\$1,067	45%	85%	\$0.03	0.00
Electric	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	4,624	20	\$1,067	45%	85%	\$0.03	90,182
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	4,508	25	\$7,375	15%	95%	\$0.17	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	4,508	25	\$7,375	15%	95%	\$0.17	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	7,162	25	\$7,375	15%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	7,162	25	\$7,375	15%	95%	\$0.10	0.00
Electric	Large Retail	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	3,789	25	\$6,146	95%	85%	\$0.17	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	2,756	10	\$11,029	0.0%	0%	\$0.68	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	2,756	10	\$11,029	0.0%	0%	\$0.68	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	5,640	10	\$11,029	0.0%	0%	\$0.33	0.00
Electric	Large Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	5,640	10	\$11,029	0.0%	0%	\$0.33	0.00
Electric	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	15,921	25	\$116	80%	90%	\$0.00	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	15,921	25	\$116	80%	90%	\$0.00	781,752
Electric	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	10,745	8	\$1,085	75%	70%	\$0.02	39,541,448
Electric	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	10,745	8	\$1,085	75%	70%	\$0.02	41,567,929
Electric	Large Retail	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	8,925	15	\$9,447	62%	90%	\$0.14	0.00
Electric	Large Retail	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	4,512	8	\$6,401	45%	90%	\$0.28	0.00
Electric	Large Retail	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	4,184	8	\$1,165	5.0%	50%	\$0.06	0.00
Electric	Large Retail	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	8,139	17	\$5,530	75%	50%	\$0.08	0.00
Electric	Large Retail	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	3,718	8	\$804	25%	25%	\$0.04	0.00
Electric	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	10,745	8	\$1,085	75%	70%	\$0.02	4,342,553
Electric	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	10,745	8	\$1,085	75%	70%	\$0.02	5,306,526
Electric	Large Retail	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	8,925	15	\$9,447	62%	90%	\$0.14	0.00
Electric	Large Retail	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	4,512	8	\$6,401	45%	90%	\$0.28	0.00
Electric	Large Retail	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	4,184	8	\$1,165	5.0%	50%	\$0.06	0.00
Electric	Large Retail	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	8,139	17	\$5,530	75%	50%	\$0.08	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	5,485	10	\$2,912	5.0%	75%	\$0.09	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	14,497	8	\$12,758	5.0%	85%	\$0.18	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	10,873	8	\$9,568	5.0%	85%	\$0.18	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	846	6	\$312	10%	80%	\$0.07	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	Existing	634	6	\$321	5.0%	80%	\$0.11	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	36,894	13	\$81,574	50%	N/A	\$0.71	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	36,894	13	\$81,574	50%	N/A	\$0.71	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	37,428	13	\$85,960	50%	N/A	\$0.72	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	37,428	13	\$85,960	50%	N/A	\$0.72	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,260	13	\$3,292	100%	N/A	\$0.09	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,260	13	\$3,292	100%	N/A	\$0.09	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,380	13	\$3,229	100%	N/A	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,380	13	\$3,229	100%	N/A	\$0.09	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	15,402	13	\$26,177	100%	N/A	\$0.28	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	15,402	13	\$26,177	100%	N/A	\$0.28	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	17,175	13	\$26,047	100%	N/A	\$0.25	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	17,175	13	\$26,047	100%	N/A	\$0.25	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	15,182	13	\$11,230	100%	N/A	\$0.09	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	15,182	13	\$11,230	100%	N/A	\$0.09	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	17,423	13	\$11,341	100%	N/A	\$0.08	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	17,423	13	\$11,341	100%	N/A	\$0.08	0.00
Electric	Large Retail	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	24,959	8	\$6,401	5.0%	90%	\$0.05	7,005,653
Electric	Large Retail	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	24,959	8	\$6,401	5.0%	90%	\$0.05	7,470,827
Electric	Large Retail	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	20,571	8	\$804	5.0%	25%	\$0.01	1,605,363
Electric	Large Retail	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	20,571	8	\$804	5.0%	25%	\$0.01	1,711,959
Electric	Large Retail	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	8,719	15	\$3,676	100%	N/A	\$0.07	0.00
Electric	Large Retail	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	11,388	15	\$15,183	95%	N/A	\$0.17	0.00
Electric	Large Retail	Lighting Interior Hid	Lighting Interior - High Bay LEO - Above Standard	Above Standard High Bay LEO Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	9,648	16	\$11,860	50%	N/A	\$1.42	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	5,868	11	\$111	25%	N/A	\$-0.03	1,726,375
Electric	Large Retail	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	5,868	11	\$111	25%	N/A	\$-0.03	1,751,321
Electric	Large Retail	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	2,643	15	\$70,745	100%	N/A	\$3.35	0.00
Electric	Large Retail	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	4,399	8	\$6,401	5.0%	90%	\$0.29	0.00
Electric	Large Retail	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	3,625	8	\$804	10%	25%	\$0.04	658,418
Electric	Large Retail	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	3,625	8	\$804	10%	25%	\$0.04	692,111
Electric	Large Retail	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	3,078	11	\$1,197	95%	65%	\$0.06	0.00
Electric	Large Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	615	13	\$527	95%	95%	\$0.12	0.00
Electric	Large Retail	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	6,262	10	\$2,912	5.0%	75%	\$0.08	0.00
Electric	Large Retail	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	11,530	8	\$12,758	5.0%	85%	\$0.22	0.00
Electric	Large Retail	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	8,648	8	\$9,568	5.0%	85%	\$0.22	0.00
Electric	Large Retail	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	654	6	\$160	10%	80%	\$0.03	40,325
Electric	Large Retail	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	654	6	\$160	10%	80%	\$0.03	49,281
Electric	Large Retail	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	361	6	\$142	10%	80%	\$0.07	0.00
Electric	Large Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	615	13	\$527	95%	95%	\$0.12	0.00
Electric	Large Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	40,705	13	\$92,049	100%	N/A	\$0.32	0.00
Electric	Large Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	40,705	13	\$92,049	100%	N/A	\$0.32	0.00
Electric	Large Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	46,967	13	\$82,668	100%	N/A	\$0.25	0.00
Electric	Large Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	46,967	13	\$82,668	100%	N/A	\$0.25	0.00
Electric	Large Retail	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	28,493	8	\$6,401	5.0%	90%	\$0.04	986,709
Electric	Large Retail	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	28,493	8	\$6,401	5.0%	90%	\$0.04	1,205,856

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	57,736	4	\$339	85%	N/A	\$-0.02	0.00
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	57,736	4	\$339	85%	N/A	\$-0.02	0.00
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	86,533	4	\$509	85%	N/A	\$-0.02	0.00
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	86,533	4	\$509	85%	N/A	\$-0.02	0.00
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	48,269	1	\$107	100%	N/A	\$0.01	0.00
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	72,343	1	\$156	100%	N/A	\$0.01	0.00
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	58,175	12	\$8,648	85%	N/A	\$0.01	37,708,758
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	58,175	12	\$8,648	85%	N/A	\$0.01	37,708,758
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	87,191	12	\$12,959	85%	N/A	\$0.01	55,735,129
Electric	Large Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	87,191	12	\$12,959	85%	N/A	\$0.01	55,735,129
Electric	Large Retail	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	6,885	8	\$6,401	5.0%	90%	\$0.19	0.00
Electric	Large Retail	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	5,674	8	\$804	1.0%	25%	\$0.03	24,925
Electric	Large Retail	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	5,674	8	\$804	1.0%	25%	\$0.03	35,538
Electric	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	15	7	\$4	10%	90%	\$0.06	0.00
Electric	Large Retail	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	72	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	53	10	\$0.00	95%	75%	\$0.00	313,043
Electric	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	53	10	\$0.00	95%	75%	\$0.00	336,879
Electric	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	700	4	\$138	60%	90%	\$0.07	0.00
Electric	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	15	7	\$4	10%	90%	\$0.06	0.00
Electric	Large Retail	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	72	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	53	10	\$0.00	95%	75%	\$0.00	35,148

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	53	10	\$0.00	95%	75%	\$0.00	41,963
Electric	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	700	4	\$138	60%	90%	\$0.07	0.00
Electric	Large Retail	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	128	6	\$160	100%	N/A	\$0.31	0.00
Electric	Large Retail	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	128	6	\$160	100%	N/A	\$0.31	28
Electric	Large Retail	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	128	6	\$160	100%	N/A	\$0.31	43
Electric	Large Retail	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	267	6	\$40	100%	N/A	\$0.04	14,051
Electric	Large Retail	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	267	6	\$40	100%	N/A	\$0.04	25,449
Electric	Large Retail	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	267	6	\$40	100%	N/A	\$0.04	0.00
Electric	Large Retail	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	59	20	\$160	100%	N/A	\$0.30	0.00
Electric	Large Retail	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	66	20	\$214	100%	N/A	\$0.36	0.00
Electric	Large Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	52	20	\$8	100%	N/A	\$0.02	36,902
Electric	Large Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	52	20	\$8	100%	N/A	\$0.02	40,073
Electric	Large Retail	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	16	20	\$4	100%	N/A	\$0.03	0.00
Electric	Large Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	408	20	\$44	8.8%	100%	\$0.01	192,767
Electric	Large Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	408	20	\$44	8.8%	100%	\$0.01	192,767
Electric	Large Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	416	20	\$40	8.8%	100%	\$0.01	211,674
Electric	Large Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	416	20	\$40	8.8%	100%	\$0.01	211,674
Electric	Large Retail	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	59	20	\$160	100%	N/A	\$0.30	0.00
Electric	Large Retail	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	66	20	\$214	100%	N/A	\$0.36	0.00
Electric	Large Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	52	20	\$8	100%	N/A	\$0.02	17,149
Electric	Large Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	52	20	\$8	100%	N/A	\$0.02	17,388
Electric	Large Retail	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	16	20	\$4	100%	N/A	\$0.03	0.00
Electric	Large Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	225	15	\$8,902	80%	95%	\$5.16	0.00
Electric	Large Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	287	15	\$8,902	80%	95%	\$4.05	0.00
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	413	15	\$57,675	0.5%	65%	\$49.83	0.00
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	526	15	\$57,675	0.5%	65%	\$39.14	0.00
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	413	15	\$30,229	0.5%	65%	\$41.15	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	526	15	\$30,229	0.5%	65%	\$32.32	0.00
Electric	Large Retail	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	101	12	\$5,454	2.5%	85%	\$8.06	0.00
Electric	Large Retail	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	129	12	\$5,454	2.5%	85%	\$6.33	0.00
Electric	Large Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	225	40	\$57,653	2.0%	100%	\$101.33	0.00
Electric	Large Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	287	40	\$57,653	2.0%	100%	\$79.59	0.00
Electric	Large Retail	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	112	12	\$1,250	10%	60%	\$1.66	0.00
Electric	Large Retail	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	143	12	\$1,250	10%	60%	\$1.31	0.00
Electric	Large Retail	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8	25	\$13,396	45%	65%	\$156.54	0.00
Electric	Large Retail	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	11	25	\$13,396	45%	65%	\$122.95	0.00
Electric	Large Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.78	25	\$6,441	25%	85%	\$836.78	0.00
Electric	Large Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.99	25	\$6,441	25%	85%	\$657.23	0.00
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	210	9	\$49	100%	N/A	\$0.04	25,686
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	210	9	\$49	100%	N/A	\$0.04	25,686
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	268	9	\$49	100%	N/A	\$0.03	23,828
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	268	9	\$49	100%	N/A	\$0.03	23,828
Electric	Large Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	284	25	\$116	15%	90%	\$0.04	40,047
Electric	Large Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	362	25	\$116	15%	90%	\$0.03	12,842
Electric	Large Retail	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	259	25	\$1,751	15%	25%	\$0.69	0.00
Electric	Large Retail	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	330	25	\$1,751	15%	25%	\$0.54	0.00
Electric	Large Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	225	15	\$8,902	80%	95%	\$5.16	0.00
Electric	Large Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	287	15	\$8,902	80%	95%	\$4.05	0.00
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	413	15	\$26,137	0.5%	65%	\$39.86	0.00
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	526	15	\$26,137	0.5%	65%	\$31.31	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	413	15	\$4,186	0.5%	65%	\$32.92	0.00
Electric	Large Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	526	15	\$4,186	0.5%	65%	\$25.86	0.00
Electric	Large Retail	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	101	12	\$5,454	2.5%	85%	\$8.06	0.00
Electric	Large Retail	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	129	12	\$5,454	2.5%	85%	\$6.33	0.00
Electric	Large Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	225	40	\$57,653	2.0%	100%	\$101.33	0.00
Electric	Large Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	287	40	\$57,653	2.0%	100%	\$79.59	0.00
Electric	Large Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.78	25	\$6,441	75%	85%	\$836.78	0.00
Electric	Large Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.99	25	\$6,441	75%	85%	\$657.23	0.00
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	210	9	\$49	100%	N/A	\$0.04	8,744
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	210	9	\$49	100%	N/A	\$0.04	8,744
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	268	9	\$49	100%	N/A	\$0.03	5,475
Electric	Large Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	268	9	\$49	100%	N/A	\$0.03	5,475
Electric	Large Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	284	25	\$116	80%	90%	\$0.04	21,229
Electric	Large Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	362	25	\$116	80%	90%	\$0.03	7,959
Electric	Large Retail	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	3,894	15	\$30,287	0.5%	65%	\$4.37	0.00
Electric	Large Retail	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	282	12	\$5,454	2.5%	85%	\$2.90	0.00
Electric	Large Retail	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	627	12	\$1,250	10%	60%	\$0.30	0.00
Electric	Large Retail	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,234	25	\$13,396	45%	65%	\$1.11	0.00
Electric	Large Retail	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	156	25	\$6,441	25%	85%	\$4.20	0.00
Electric	Large Retail	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,508	25	\$23,907	15%	85%	\$1.61	0.00
Electric	Large Retail	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	280	25	\$7,375	15%	95%	\$2.68	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	760	25	\$58,778	10%	45%	\$7.87	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	760	25	\$58,778	10%	45%	\$7.87	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,994	25	\$58,778	10%	45%	\$3.00	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,994	25	\$58,778	10%	45%	\$3.00	0.00
Electric	Large Retail	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	3,894	15	\$89,342	0.5%	65%	\$3.00	0.00
Electric	Large Retail	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	282	12	\$5,454	2.5%	85%	\$2.90	0.00
Electric	Large Retail	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	156	25	\$6,441	75%	85%	\$4.20	0.00
Electric	Large Retail	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	280	25	\$7,375	15%	95%	\$2.68	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	760	25	\$6,146	95%	85%	\$0.82	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	760	25	\$6,146	95%	85%	\$0.82	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,994	25	\$6,146	95%	85%	\$0.31	0.00
Electric	Large Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,994	25	\$6,146	95%	85%	\$0.31	0.00
Electric	Large Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	168	9	\$22	100%	N/A	\$0.02	704,904
Electric	Large Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	168	9	\$22	100%	N/A	\$0.02	709,490
Electric	Large Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	168	9	\$22	100%	N/A	\$0.02	90,908
Electric	Large Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	168	9	\$22	100%	N/A	\$0.02	106,846
Electric	Large Retail	Space Heat	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	488	15	\$594	25%	95%	\$0.16	0.00
Electric	Large Retail	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	7,322	15	\$35,799	15%	70%	\$2.43	0.00
Electric	Large Retail	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	3,661	5	\$2,791	75%	75%	\$0.22	0.00
Electric	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	610	18	\$10,721	45%	85%	\$2.08	0.00
Electric	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	3,661	14	\$40,516	5.0%	95%	\$1.51	0.00
Electric	Large Retail	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,098	12	\$5,454	2.5%	85%	\$0.75	0.00
Electric	Large Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	2,440	12	\$1,250	10%	60%	\$0.08	0.00
Electric	Large Retail	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4,801	25	\$13,396	45%	65%	\$0.28	0.00
Electric	Large Retail	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	608	25	\$6,441	25%	85%	\$1.08	0.00
Electric	Large Retail	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	732	20	\$6,088	45%	60%	\$0.93	0.00
Electric	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	439	20	\$1,067	45%	85%	\$0.27	0.00
Electric	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	5,869	25	\$23,907	15%	85%	\$0.41	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,092	25	\$7,375	15%	95%	\$0.69	0.00
Electric	Large Retail	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	7,761	25	\$58,778	10%	45%	\$0.77	0.00
Electric	Large Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	3,050	7	\$8,804	90%	95%	\$0.64	0.00
Electric	Large Retail	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	800	7	\$33,056	95%	95%	\$9.16	0.00
Electric	Large Retail	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	3,661	5	\$2,791	25%	25%	\$0.22	0.00
Electric	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	3,661	14	\$40,516	5.0%	95%	\$1.51	0.00
Electric	Large Retail	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,098	12	\$5,454	2.5%	85%	\$0.75	0.00
Electric	Large Retail	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	608	25	\$6,441	75%	85%	\$1.08	0.00
Electric	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	439	20	\$1,067	45%	85%	\$0.27	0.00
Electric	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,092	25	\$7,375	15%	95%	\$0.69	0.00
Electric	Large Retail	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,958	25	\$6,146	95%	85%	\$0.21	0.00
Electric	Large Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	957	10	\$129	100%	N/A	\$0.02	2,136,344
Electric	Large Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	957	10	\$129	100%	N/A	\$0.02	2,230,725
Electric	Large Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	957	10	\$129	100%	N/A	\$0.02	389,819
Electric	Large Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	957	10	\$129	100%	N/A	\$0.02	457,133
Electric	Large Retail	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	20,363	10	\$5,476	5.0%	90%	\$0.05	4,392,143
Electric	Large Retail	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	20,363	10	\$5,476	5.0%	90%	\$0.05	4,534,866
Electric	Large Retail	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	30,545	15	\$35,799	15%	70%	\$0.58	0.00
Electric	Large Retail	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	466	18	\$1,121	95%	65%	\$0.28	0.00
Electric	Large Retail	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	1,038	15	\$294	95%	90%	\$0.04	4,293,430
Electric	Large Retail	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	1,038	15	\$294	95%	90%	\$0.04	4,432,945

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	25,963	20	\$4,976	55%	65%	\$0.02	49,381,934
Electric	Large Retail	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	25,963	20	\$4,976	55%	65%	\$0.02	50,986,599
Electric	Large Retail	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	788	7	\$223	65%	25%	\$0.06	0.00
Electric	Large Retail	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	20,363	10	\$5,476	5.0%	90%	\$0.05	472,399
Electric	Large Retail	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	20,363	10	\$5,476	5.0%	90%	\$0.05	626,665
Electric	Large Retail	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	466	18	\$1,121	95%	65%	\$0.28	0.00
Electric	Large Retail	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	1,038	15	\$294	95%	90%	\$0.04	449,948
Electric	Large Retail	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	1,038	15	\$294	95%	90%	\$0.04	599,494
Electric	Large Retail	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	25,963	20	\$4,976	55%	45%	\$0.02	3,396,010
Electric	Large Retail	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	25,963	20	\$4,976	55%	45%	\$0.02	4,123,036
Electric	Large Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	1,157	10	\$12,409	75%	95%	\$1.82	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	24	12	\$67	75%	35%	\$0.41	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	24	12	\$13	20%	95%	\$0.08	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	24	12	\$13	20%	95%	\$0.08	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	20	12	\$8	20%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	20	12	\$8	20%	95%	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	231	12	\$142	75%	75%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	4,629	25	\$4,400	2.5%	95%	\$0.10	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	894	9	\$0.00	95%	75%	\$0.00	394,211
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	894	9	\$0.00	95%	75%	\$0.00	416,358
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	368	9	\$0.00	95%	50%	\$0.00	108,214
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	368	9	\$0.00	95%	50%	\$0.00	114,294
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	138	9	\$26	95%	25%	\$0.04	16,981
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	138	9	\$26	95%	25%	\$0.04	17,935
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	17	4	\$4	95%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	578	10	\$393	75%	85%	\$0.12	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	13,819	15	\$1,777	75%	N/A	\$0.02	43,160
Electric	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	13,819	15	\$1,777	75%	N/A	\$0.02	43,951
Electric	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	13,657	15	\$1,063	75%	N/A	\$0.02	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	1,147	10	\$12,409	75%	95%	\$1.84	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	24	12	\$67	75%	35%	\$0.41	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	22	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	22	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	23	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	23	12	\$13	20%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	20	12	\$8	20%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	20	12	\$8	20%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	21	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	21	12	\$13	20%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	4,591	25	\$3,515	2.5%	95%	\$0.08	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	886	9	\$0.00	95%	75%	\$0.00	31,999
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	886	9	\$0.00	95%	75%	\$0.00	39,672
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	365	9	\$0.00	95%	50%	\$0.00	8,784
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	365	9	\$0.00	95%	50%	\$0.00	10,890
Electric	Large Retail	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	17	4	\$4	95%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	573	10	\$393	75%	85%	\$0.12	0.00
Electric	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	13,819	15	\$1,777	75%	N/A	\$0.02	6,530
Electric	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	13,819	15	\$1,777	75%	N/A	\$0.02	8,011
Electric	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	13,657	15	\$1,063	75%	N/A	\$0.02	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	1,209	10	\$12,409	25%	95%	\$1.74	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	24	12	\$67	75%	35%	\$0.41	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	0.0%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	24	12	\$13	0.0%	95%	\$0.08	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	24	12	\$13	0.0%	95%	\$0.08	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	20	12	\$8	0.0%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	20	12	\$8	0.0%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	22	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	241	12	\$142	75%	75%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	4,837	25	\$4,400	2.5%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	934	9	\$0.00	95%	75%	\$0.00	2,437,135
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	934	9	\$0.00	95%	75%	\$0.00	2,574,037
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	384	9	\$0.00	95%	50%	\$0.00	669,017
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	384	9	\$0.00	95%	50%	\$0.00	706,598
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	145	9	\$26	95%	25%	\$0.03	104,983
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	145	9	\$26	95%	25%	\$0.03	110,880
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	17	4	\$4	95%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	604	10	\$393	75%	85%	\$0.11	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	12,780	15	\$9,103	75%	N/A	\$0.10	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	747	15	\$397	100%	N/A	\$0.07	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	1,173	10	\$12,409	25%	95%	\$1.80	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	24	12	\$67	75%	35%	\$0.41	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	22	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	22	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	23	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	23	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	20	12	\$8	0.0%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	20	12	\$8	0.0%	95%	\$0.07	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	21	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	21	12	\$13	0.0%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	4,693	25	\$3,515	2.5%	95%	\$0.08	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	906	9	\$0.00	95%	75%	\$0.00	250,736
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	906	9	\$0.00	95%	75%	\$0.00	310,988
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	373	9	\$0.00	95%	50%	\$0.00	68,829
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	373	9	\$0.00	95%	50%	\$0.00	85,369
Electric	Large Retail	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	17	4	\$4	95%	95%	\$0.09	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	586	10	\$393	75%	85%	\$0.11	0.00
Electric	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	12,780	15	\$9,103	75%	N/A	\$0.10	634
Electric	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	12,780	15	\$9,103	75%	N/A	\$0.10	1,427
Electric	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	747	15	\$397	100%	N/A	\$0.07	-1093,7955
Electric	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	747	15	\$397	100%	N/A	\$0.07	-118.974816
Electric	Lodging	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	500	4	\$58	100%	N/A	\$0.04	384,100

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	500	4	\$58	100%	N/A	\$0.04	419,977
Electric	Lodging	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	500	4	\$58	100%	N/A	\$0.04	112,856
Electric	Lodging	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	500	4	\$58	100%	N/A	\$0.04	131,220
Electric	Lodging	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	113	12	\$66	19%	60%	\$0.09	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	65	12	\$15	19%	55%	\$0.04	28,359
Electric	Lodging	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	65	12	\$15	19%	55%	\$0.04	43,027
Electric	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	184	12	\$117	55%	85%	\$0.10	0.00
Electric	Lodging	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	319	12	\$178	11%	75%	\$0.08	0.00
Electric	Lodging	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	113	12	\$66	19%	60%	\$0.09	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	13	12	\$35	19%	70%	\$0.39	0.00
Electric	Lodging	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	65	12	\$15	19%	55%	\$0.04	3,790
Electric	Lodging	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	65	12	\$15	19%	55%	\$0.04	4,469
Electric	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	184	12	\$117	55%	85%	\$0.10	0.00
Electric	Lodging	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	319	12	\$178	11%	75%	\$0.08	0.00
Electric	Lodging	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	786	15	\$509	50%	95%	\$0.08	153,669
Electric	Lodging	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	786	15	\$509	50%	95%	\$0.08	370,864
Electric	Lodging	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	2,442	10	\$20,017	25%	95%	\$1.39	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	2,442	10	\$20,017	25%	95%	\$1.39	0.00
Electric	Lodging	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	1,615	10	\$17,339	75%	95%	\$1.82	0.00
Electric	Lodging	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	1,615	10	\$17,339	75%	95%	\$1.82	0.00
Electric	Lodging	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	1,615	15	\$46,473	45%	30%	\$3.76	0.00
Electric	Lodging	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	1,615	15	\$46,473	45%	30%	\$3.76	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	238	15	\$552	90%	90%	\$0.30	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	238	15	\$552	90%	90%	\$0.30	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	241	15	\$557	90%	90%	\$0.30	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	241	15	\$557	90%	90%	\$0.30	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	142	15	\$254	75%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	142	15	\$254	75%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	144	15	\$259	75%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	144	15	\$259	75%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	6,777	20	\$14,906	100%	N/A	\$0.25	0.00
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - High Efficiency	High Efficiency - 0.71 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	2,259	20	\$4,970	100%	N/A	\$0.25	0.00
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	5,039	20	\$11,083	100%	N/A	\$0.25	0.00
Electric	Lodging	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	9,693	15	\$77,371	5.0%	70%	\$1.04	0.00
Electric	Lodging	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	9,693	15	\$77,371	5.0%	70%	\$1.04	0.00
Electric	Lodging	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,231	15	\$4,774	45%	95%	\$0.19	0.00
Electric	Lodging	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,231	15	\$4,774	45%	95%	\$0.19	0.00
Electric	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	2,584	7	\$2,473	10%	95%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	2,584	7	\$2,473	10%	95%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	4,523	15	\$221	65%	35%	\$0.01	599,599

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	4,523	15	\$221	65%	35%	\$0.01	1,447,067
Electric	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	1,292	13	\$1,791	75%	75%	\$0.20	0.00
Electric	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	1,292	13	\$1,791	75%	75%	\$0.20	0.00
Electric	Lodging	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	4,846	5	\$1,590	75%	75%	\$0.10	0.00
Electric	Lodging	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	4,846	5	\$1,590	75%	75%	\$0.10	0.00
Electric	Lodging	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,454	12	\$5,449	10%	85%	\$0.56	0.00
Electric	Lodging	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,454	12	\$5,449	10%	85%	\$0.56	0.00
Electric	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,231	40	\$38,211	2.0%	100%	\$3.80	0.00
Electric	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,231	40	\$38,211	2.0%	100%	\$3.80	0.00
Electric	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,615	12	\$1,356	10%	60%	\$0.13	0.00
Electric	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,615	12	\$1,356	10%	60%	\$0.13	0.00
Electric	Lodging	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	52	25	\$7,184	45%	65%	\$13.96	0.00
Electric	Lodging	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	52	25	\$7,184	45%	65%	\$13.96	0.00
Electric	Lodging	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	11	25	\$3,456	25%	85%	\$31.36	0.00
Electric	Lodging	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	11	25	\$3,456	25%	85%	\$31.36	0.00
Electric	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	4,038	7	\$5,016	90%	95%	\$0.28	0.00
Electric	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	4,038	7	\$5,016	90%	95%	\$0.28	0.00
Electric	Lodging	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	3,231	3	\$2	95%	20%	\$0.00	370,934
Electric	Lodging	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	3,231	3	\$2	95%	20%	\$0.00	895,210
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	9,823	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	9,823	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	9,855	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	9,855	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	4,076	25	\$127	15%	90%	\$0.00	278,246
Electric	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	4,076	25	\$127	15%	90%	\$0.00	671,517
Electric	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,718	25	\$1,901	15%	25%	\$0.05	53,000
Electric	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,718	25	\$1,901	15%	25%	\$0.05	127,911

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	2,022	10	\$18,014	25%	95%	\$1.51	0.00
Electric	Lodging	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	1,337	10	\$17,339	0.0%	0%	\$2.20	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	142	15	\$254	95%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	142	15	\$254	95%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	144	15	\$259	95%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	144	15	\$259	95%	90%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	6,777	20	\$13,417	100%	N/A	\$0.22	0.00
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - High Efficiency	High Efficiency - 0.71 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	2,259	20	\$4,474	100%	N/A	\$0.22	0.00
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	5,039	20	\$9,976	100%	N/A	\$0.22	1
Electric	Lodging	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	5,039	20	\$9,976	100%	N/A	\$0.22	5
Electric	Lodging	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	877	7	\$18,833	95%	95%	\$4.76	0.00
Electric	Lodging	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	2,675	15	\$4,774	45%	95%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	2,140	7	\$2,226	10%	95%	\$0.23	0.00
Electric	Lodging	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	4,013	5	\$1,590	25%	25%	\$0.12	0.00
Electric	Lodging	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,204	12	\$5,449	10%	85%	\$0.68	0.00
Electric	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	2,675	40	\$38,211	2.0%	100%	\$4.58	0.00
Electric	Lodging	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	9	25	\$3,456	75%	85%	\$37.87	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	9,823	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	9,823	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	9,855	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	9,855	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	3,376	25	\$127	80%	90%	\$0.00	160,686
Electric	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	3,376	25	\$127	80%	90%	\$0.00	333,596
Electric	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	827	15	\$509	50%	95%	\$0.08	359,534

Table F.2. Commercial Residential Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	872	15	\$509	50%	95%	\$0.08	347,476
Electric	Lodging	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	10,202	15	\$77,371	5.0%	70%	\$0.99	0.00
Electric	Lodging	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	10,754	15	\$77,371	5.0%	70%	\$0.94	0.00
Electric	Lodging	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,400	15	\$4,774	45%	95%	\$0.18	0.00
Electric	Lodging	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,584	15	\$4,774	45%	95%	\$0.17	0.00
Electric	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	971	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	2,482	15	\$2,308	100%	N/A	\$0.12	0.00
Electric	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	5,101	10	\$14,430	10%	30%	\$0.48	0.00
Electric	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	5,377	10	\$14,430	10%	30%	\$0.46	0.00
Electric	Lodging	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	5,101	5	\$1,590	75%	75%	\$0.09	0.00
Electric	Lodging	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	5,377	5	\$1,590	75%	75%	\$0.09	2,784,717
Electric	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	850	18	\$6,108	45%	85%	\$0.85	0.00
Electric	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	896	18	\$6,108	45%	85%	\$0.81	0.00
Electric	Lodging	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	20,556	15	-\$48369.626	35%	N/A	-\$0.40	2,333,562
Electric	Lodging	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	20,556	15	-\$48369.626	35%	N/A	-\$0.40	2,943,414
Electric	Lodging	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,530	12	\$5,449	10%	85%	\$0.53	0.00
Electric	Lodging	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,613	12	\$5,449	10%	85%	\$0.51	0.00
Electric	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,400	40	\$38,211	2.0%	100%	\$3.61	0.00
Electric	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,584	40	\$38,211	2.0%	100%	\$3.42	0.00
Electric	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,700	12	\$1,356	10%	60%	\$0.12	0.00
Electric	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,792	12	\$1,356	10%	60%	\$0.11	81,992
Electric	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	55	25	\$7,184	45%	65%	\$13.27	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	58	25	\$7,184	45%	65%	\$12.58	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	11	25	\$3,456	25%	85%	\$29.80	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	12	25	\$3,456	25%	85%	\$28.27	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,020	20	\$1,392	45%	60%	\$0.15	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,075	20	\$1,409	45%	60%	\$0.15	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	612	20	\$244	45%	85%	\$0.04	199,203
Electric	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	645	20	\$246	45%	85%	\$0.04	192,523
Electric	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	4,251	7	\$5,016	90%	95%	\$0.26	0.00
Electric	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	4,481	7	\$5,016	90%	95%	\$0.25	0.00
Electric	Lodging	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-up / Diagnostics	Per Building	Existing	3,400	5	\$4,072	95%	50%	\$0.35	0.00
Electric	Lodging	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-up / Diagnostics	Per Building	Existing	3,584	5	\$4,072	95%	50%	\$0.33	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	9,823	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	9,823	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	9,855	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	9,855	10	\$11,977	35%	70%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	4,291	25	\$127	15%	90%	\$0.00	634,637
Electric	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	4,523	25	\$127	15%	90%	\$0.00	613,353
Electric	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,913	25	\$1,901	15%	25%	\$0.05	124,003
Electric	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	4,125	25	\$1,901	15%	25%	\$0.05	119,845
Electric	Lodging	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,033	7	\$18,833	95%	95%	\$4.04	0.00
Electric	Lodging	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,084	7	\$18,833	95%	95%	\$3.85	0.00
Electric	Lodging	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	3,149	15	\$4,774	45%	95%	\$0.20	0.00
Electric	Lodging	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	3,306	15	\$4,774	45%	95%	\$0.19	0.00
Electric	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	971	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	2,482	15	\$1,847	100%	N/A	\$0.10	0.00
Electric	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	2,482	15	\$1,847	100%	N/A	\$0.10	82,031
Electric	Lodging	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	4,724	5	\$1,590	25%	25%	\$0.10	0.00
Electric	Lodging	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	4,960	5	\$1,590	25%	25%	\$0.09	29,186

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	20,556	15	\$-35262.361	35%	N/A	\$-0.29	490,540
Electric	Lodging	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	20,556	15	\$-35262.361	35%	N/A	\$-0.29	809,961
Electric	Lodging	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,417	12	\$5,449	10%	85%	\$0.58	0.00
Electric	Lodging	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,488	12	\$5,449	10%	85%	\$0.55	0.00
Electric	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	3,149	40	\$38,211	2.0%	100%	\$3.89	0.00
Electric	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	3,306	40	\$38,211	2.0%	100%	\$3.71	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	10	25	\$3,456	75%	85%	\$32.17	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	11	25	\$3,456	75%	85%	\$30.64	0.00
Electric	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	566	20	\$244	45%	85%	\$0.05	12,546
Electric	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	595	20	\$246	45%	85%	\$0.05	16,975
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	9,823	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	9,823	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	9,855	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	9,855	10	\$11,977	0.0%	0%	\$0.21	0.00
Electric	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	3,973	25	\$127	80%	90%	\$0.00	230,481
Electric	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	4,172	25	\$127	80%	90%	\$0.00	311,848
Electric	Lodging	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	10	6	\$0.00	100%	N/A	\$0.00	74,032
Electric	Lodging	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	10	6	\$0.00	100%	N/A	\$0.00	75,012
Electric	Lodging	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	10	6	\$0.00	100%	N/A	\$0.00	11,193
Electric	Lodging	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	10	6	\$0.00	100%	N/A	\$0.00	13,172
Electric	Lodging	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	67	4	\$76	100%	N/A	\$0.40	0.00
Electric	Lodging	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	67	4	\$76	100%	N/A	\$0.40	13
Electric	Lodging	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	67	4	\$76	100%	N/A	\$0.40	18
Electric	Lodging	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	23	20	\$5	100%	N/A	\$0.02	0.00
Electric	Lodging	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	64	20	\$2	100%	N/A	\$0.00	127,614
Electric	Lodging	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	64	20	\$2	100%	N/A	\$0.00	-2335.138308
Electric	Lodging	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	445	20	\$61	8.8%	100%	\$0.02	324,815

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	445	20	\$61	8.8%	100%	\$0.02	324,815
Electric	Lodging	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	526	20	\$63	8.8%	100%	\$0.01	356,034
Electric	Lodging	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	526	20	\$63	8.8%	100%	\$0.01	356,034
Electric	Lodging	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	23	20	\$5	100%	N/A	\$0.02	0.00
Electric	Lodging	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	64	20	\$2	100%	N/A	\$0.00	44,281
Electric	Lodging	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	64	20	\$2	100%	N/A	\$0.00	-303.207252
Electric	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	1,851	15	\$8,597	100%	N/A	\$0.61	0.00
Electric	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	4,069	15	\$17,194	100%	N/A	\$0.55	0.00
Electric	Lodging	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,308	15	\$509	50%	95%	\$0.05	312,168
Electric	Lodging	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,308	15	\$509	50%	95%	\$0.05	414,033
Electric	Lodging	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	14,453	15	\$77,371	5.0%	70%	\$0.70	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,368	15	\$4,774	45%	95%	\$0.46	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,368	15	\$4,774	45%	95%	\$0.46	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	2,404	15	\$4,774	45%	95%	\$0.26	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	2,404	15	\$4,774	45%	95%	\$0.26	0.00
Electric	Lodging	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	7,226	5	\$1,590	75%	75%	\$0.06	2,234,365
Electric	Lodging	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	7,226	5	\$1,590	75%	75%	\$0.06	2,963,470
Electric	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5%	No Repair or Sealing 15% duct losses	Per Building	Existing	1,204	18	\$6,108	45%	85%	\$0.60	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	3,619	14	\$43,775	5.0%	95%	\$1.65	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	3,619	14	\$43,775	5.0%	95%	\$1.65	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	5,174	14	\$43,775	5.0%	95%	\$1.15	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	5,174	14	\$43,775	5.0%	95%	\$1.15	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	2,168	12	\$5,449	10%	85%	\$0.38	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,368	40	\$38,211	2.0%	100%	\$8.97	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,368	40	\$38,211	2.0%	100%	\$8.97	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,404	40	\$38,211	2.0%	100%	\$5.10	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,404	40	\$38,211	2.0%	100%	\$5.10	0.00
Electric	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	13,381	30	\$9,760	5.0%	N/A	\$3.56	0.00
Electric	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,613	12	\$1,356	10%	60%	\$0.06	98,830
Electric	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,613	12	\$1,356	10%	60%	\$0.06	131,080
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,831	25	\$7,184	45%	65%	\$0.26	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,831	25	\$7,184	45%	65%	\$0.26	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4,013	25	\$7,184	45%	65%	\$0.18	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4,013	25	\$7,184	45%	65%	\$0.18	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	606	25	\$3,456	25%	85%	\$0.58	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	606	25	\$3,456	25%	85%	\$0.58	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	859	25	\$3,456	25%	85%	\$0.41	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	859	25	\$3,456	25%	85%	\$0.41	0.00
Electric	Lodging	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,445	20	\$1,392	45%	60%	\$0.11	0.00
Electric	Lodging	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,445	20	\$1,409	45%	60%	\$0.11	0.00
Electric	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	867	20	\$244	45%	85%	\$0.03	154,249
Electric	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	867	20	\$246	45%	85%	\$0.03	204,583
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8,380	25	\$12,824	15%	85%	\$0.16	588,848
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8,380	25	\$12,824	15%	85%	\$0.16	588,848
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	13,293	25	\$12,824	15%	85%	\$0.10	703,167
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	13,293	25	\$12,824	15%	85%	\$0.10	703,167
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,190	25	\$3,957	15%	95%	\$0.34	0.00
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,190	25	\$3,957	15%	95%	\$0.34	0.00
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,859	25	\$3,957	15%	95%	\$0.22	0.00
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,859	25	\$3,957	15%	95%	\$0.22	0.00
Electric	Lodging	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	7,683	25	\$31,528	10%	45%	\$0.42	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	6,022	7	\$5,016	90%	95%	\$0.18	0.00
Electric	Lodging	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	4,817	3	\$4,072	95%	50%	\$0.39	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	2,798	10	\$11,977	35%	70%	\$0.73	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	2,798	10	\$11,977	35%	70%	\$0.73	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	4,902	10	\$11,977	35%	70%	\$0.42	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	4,902	10	\$11,977	35%	70%	\$0.42	0.00
Electric	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,322	25	\$127	15%	90%	\$0.01	83,334
Electric	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,322	25	\$127	15%	90%	\$0.01	110,527
Electric	Lodging	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	2,068	25	\$1,901	15%	25%	\$0.09	32,233
Electric	Lodging	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	2,068	25	\$1,901	15%	25%	\$0.09	41,803
Electric	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,851	15	\$6,879	100%	N/A	\$0.49	0.00
Electric	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	4,069	15	\$13,756	100%	N/A	\$0.44	120
Electric	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	4,069	15	\$13,756	100%	N/A	\$0.44	162
Electric	Lodging	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,461	7	\$18,833	95%	95%	\$2.86	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,265	15	\$4,774	45%	95%	\$0.49	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,265	15	\$4,774	45%	95%	\$0.49	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	2,224	15	\$4,774	45%	95%	\$0.28	0.00
Electric	Lodging	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	2,224	15	\$4,774	45%	95%	\$0.28	0.00
Electric	Lodging	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	6,685	5	\$1,590	25%	25%	\$0.07	31,893
Electric	Lodging	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	6,685	5	\$1,590	25%	25%	\$0.07	33,054
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	3,348	14	\$43,775	5.0%	95%	\$1.78	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	3,348	14	\$43,775	5.0%	95%	\$1.78	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	4,786	14	\$43,775	5.0%	95%	\$1.25	0.00
Electric	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	4,786	14	\$43,775	5.0%	95%	\$1.25	0.00
Electric	Lodging	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	2,005	12	\$5,449	10%	85%	\$0.41	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,265	40	\$38,211	2.0%	100%	\$9.69	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,265	40	\$38,211	2.0%	100%	\$9.69	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	2,224	40	\$38,211	2.0%	100%	\$5.51	0.00
Electric	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	2,224	40	\$38,211	2.0%	100%	\$5.51	0.00
Electric	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	13,381	30	\$61,855	5.0%	N/A	\$1.80	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	560	25	\$3,456	75%	85%	\$0.63	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	560	25	\$3,456	75%	85%	\$0.63	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	795	25	\$3,456	75%	85%	\$0.44	0.00
Electric	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	795	25	\$3,456	75%	85%	\$0.44	0.00
Electric	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	802	20	\$244	45%	85%	\$0.03	16,969
Electric	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	802	20	\$246	45%	85%	\$0.03	19,224
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,101	25	\$3,957	15%	95%	\$0.37	0.00
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,101	25	\$3,957	15%	95%	\$0.37	0.00
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,719	25	\$3,957	15%	95%	\$0.23	0.00
Electric	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,719	25	\$3,957	15%	95%	\$0.23	0.00
Electric	Lodging	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	657	25	\$3,295	95%	85%	\$0.51	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	New	2,798	10	\$11,977	0.0%	0%	\$0.73	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	New	2,798	10	\$11,977	0.0%	0%	\$0.73	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	New	4,902	10	\$11,977	0.0%	0%	\$0.42	0.00
Electric	Lodging	Heat Pump	Window Film	Window Film	No Film	Per Building	New	4,902	10	\$11,977	0.0%	0%	\$0.42	0.00
Electric	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,223	25	\$127	80%	90%	\$0.01	49,695
Electric	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,223	25	\$127	80%	90%	\$0.01	56,301
Electric	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	3,640	8	\$794	75%	70%	\$0.04	0.00
Electric	Lodging	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	3,023	15	\$1,285	62%	90%	\$0.06	0.00
Electric	Lodging	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	3,023	15	\$1,300	62%	90%	\$0.06	0.00
Electric	Lodging	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,645	8	\$1,463	90%	90%	\$0.11	0.00
Electric	Lodging	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,645	8	\$1,481	90%	90%	\$0.11	0.00
Electric	Lodging	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	2,383	8	\$664	5.0%	50%	\$0.06	0.00
Electric	Lodging	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	4,637	17	\$3,150	75%	50%	\$0.08	0.00
Electric	Lodging	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	1,259	8	\$58	25%	25%	\$0.01	651,343
Electric	Lodging	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	1,259	8	\$61	25%	25%	\$0.01	685,304
Electric	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	3,640	8	\$794	75%	70%	\$0.04	0.00
Electric	Lodging	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	3,023	15	\$1,285	62%	90%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	3,023	15	\$1,300	62%	90%	\$0.06	0.00
Electric	Lodging	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,645	8	\$1,463	90%	90%	\$0.11	0.00
Electric	Lodging	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,645	8	\$1,481	90%	90%	\$0.11	0.00
Electric	Lodging	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	2,383	8	\$664	5.0%	50%	\$0.06	0.00
Electric	Lodging	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	4,637	17	\$3,150	75%	50%	\$0.08	0.00
Electric	Lodging	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	641	10	\$666	25%	75%	\$0.18	0.00
Electric	Lodging	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	641	10	\$674	25%	75%	\$0.18	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,562	8	\$9,345	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,562	8	\$9,345	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,585	8	\$9,345	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,585	8	\$9,345	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,672	8	\$7,006	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,672	8	\$7,006	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,688	8	\$7,006	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,688	8	\$7,006	5.0%	90%	\$0.52	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,313	13	\$27,479	50%	N/A	\$0.93	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,313	13	\$27,479	50%	N/A	\$0.93	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,315	13	\$27,275	50%	N/A	\$0.93	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,315	13	\$27,275	50%	N/A	\$0.93	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	965	13	\$682	100%	N/A	\$0.12	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	965	13	\$682	100%	N/A	\$0.12	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	966	13	\$702	100%	N/A	\$0.13	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	966	13	\$702	100%	N/A	\$0.13	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,774	13	\$3,224	100%	N/A	\$0.34	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,774	13	\$3,224	100%	N/A	\$0.34	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,008	13	\$3,252	100%	N/A	\$0.30	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,008	13	\$3,252	100%	N/A	\$0.30	0.00
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,775	13	\$483	100%	N/A	\$0.05	7,806,287
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,775	13	\$483	100%	N/A	\$0.05	7,806,287
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,007	13	\$478	100%	N/A	\$0.04	9,187,535
Electric	Lodging	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,007	13	\$478	100%	N/A	\$0.04	9,187,535
Electric	Lodging	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	5,050	8	\$1,463	5.0%	90%	\$0.06	0.00
Electric	Lodging	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	5,050	8	\$1,481	5.0%	90%	\$0.06	0.00
Electric	Lodging	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,404	8	\$58	5.0%	25%	\$0.00	209,400
Electric	Lodging	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,404	8	\$61	5.0%	25%	\$0.01	218,734
Electric	Lodging	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	202	15	\$150	100%	N/A	\$0.11	0.00
Electric	Lodging	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	264	15	\$638	95%	N/A	\$0.32	0.00
Electric	Lodging	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	223	29	\$4,746	50%	N/A	\$2.00	0.00
Electric	Lodging	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	136	20	\$-2,5451	25%	N/A	\$-0.04	25,263

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	136	20	\$-2,5451	25%	N/A	\$-0.04	25,636
Electric	Lodging	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	61	15	\$2,998	100%	N/A	\$6.23	0.00
Electric	Lodging	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	174	8	\$1,463	5.0%	90%	\$1.67	0.00
Electric	Lodging	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	174	8	\$1,481	5.0%	90%	\$1.69	0.00
Electric	Lodging	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	83	8	\$58	10%	25%	\$0.14	0.00
Electric	Lodging	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	83	8	\$61	10%	25%	\$0.15	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	178	11	\$68	95%	65%	\$0.06	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	178	11	\$68	95%	65%	\$0.06	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	180	11	\$71	95%	65%	\$0.06	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	180	11	\$71	95%	65%	\$0.06	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	35	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	35	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	36	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	36	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	1,298	10	\$666	25%	75%	\$0.09	0.00
Electric	Lodging	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	1,298	10	\$674	25%	75%	\$0.09	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,457	8	\$9,345	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,457	8	\$9,345	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,472	8	\$9,345	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,472	8	\$9,345	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	1,843	8	\$7,006	5.0%	90%	\$0.76	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	1,843	8	\$7,006	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	1,854	8	\$7,006	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	1,854	8	\$7,006	5.0%	90%	\$0.76	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	35	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	35	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	36	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	36	13	\$30	95%	95%	\$0.12	0.00
Electric	Lodging	Lighting Interior Other	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	New	14,597	15	\$3,099	60%	95%	\$0.03	9,042,233
Electric	Lodging	Lighting Interior Other	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	New	14,597	15	\$3,140	60%	95%	\$0.03	5,528,916
Electric	Lodging	Lighting Interior Other	Lighting Package - High Efficiency	25% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	16,231	13	\$3,944	100%	N/A	\$0.03	14,046,492
Electric	Lodging	Lighting Interior Other	Lighting Package - High Efficiency	25% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	16,231	13	\$17,869	100%	N/A	\$0.16	0.00
Electric	Lodging	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	10,225	8	\$1,463	5.0%	90%	\$0.03	445,372
Electric	Lodging	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	10,225	8	\$1,481	5.0%	90%	\$0.03	273,555
Electric	Lodging	Lighting Interior Screw Base	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	Existing	19,970	15	\$3,099	60%	95%	\$0.02	37,327,847
Electric	Lodging	Lighting Interior Screw Base	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	Existing	19,970	15	\$3,140	60%	95%	\$0.02	24,590,806
Electric	Lodging	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	70,560	4	\$758	85%	N/A	\$-0.02	0.00
Electric	Lodging	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	112,684	4	\$1,211	85%	N/A	\$-0.02	0.00
Electric	Lodging	Lighting Interior Screw Base	Lighting Interior - Screw Base Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	58,990	1	\$231	100%	N/A	\$0.01	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	94,206	1	\$371	100%	N/A	\$0.01	0.00
Electric	Lodging	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	71,097	12	\$19,352	85%	N/A	\$0.02	43,872,940
Electric	Lodging	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	113,541	12	\$30,905	85%	N/A	\$0.02	69,481,364
Electric	Lodging	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	Existing	13,989	8	\$1,463	5.0%	90%	\$0.02	1,799,742
Electric	Lodging	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	Existing	13,989	8	\$1,481	5.0%	90%	\$0.02	1,185,632
Electric	Lodging	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	6,661	8	\$58	1.0%	25%	\$0.00	65,637
Electric	Lodging	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	6,661	8	\$61	1.0%	25%	\$0.00	43,240
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$2	10%	90%	\$0.19	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$2	10%	90%	\$0.19	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	3	7	\$2	10%	90%	\$0.16	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	3	7	\$2	10%	90%	\$0.16	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	16	4	\$0.00	25%	45%	\$0.00	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	19	10	\$0.00	95%	75%	\$0.00	130,807
Electric	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	19	10	\$0.00	95%	75%	\$0.00	140,886
Electric	Lodging	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	746	10	\$526	95%	60%	\$0.12	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	200	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	200	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	202	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	202	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$2	10%	90%	\$0.19	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$2	10%	90%	\$0.19	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	3	7	\$2	10%	90%	\$0.16	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	3	7	\$2	10%	90%	\$0.16	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	16	4	\$0.00	25%	45%	\$0.00	0.00
Electric	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	19	10	\$0.00	95%	75%	\$0.00	14,699
Electric	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	19	10	\$0.00	95%	75%	\$0.00	17,534
Electric	Lodging	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	New	746	10	\$526	95%	60%	\$0.12	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	200	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	200	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	202	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	202	4	\$40	60%	90%	\$0.07	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	Existing	507	9	\$3,359	50%	N/A	\$1.21	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	Existing	507	9	\$3,359	50%	N/A	\$1.21	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	Existing	646	9	\$3,359	50%	N/A	\$0.95	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	Existing	646	9	\$3,359	50%	N/A	\$0.95	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	New	507	9	\$2,687	50%	N/A	\$0.97	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	New	507	9	\$2,687	50%	N/A	\$0.97	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	New	646	9	\$2,687	50%	N/A	\$0.76	0.00
Electric	Lodging	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	New	646	9	\$2,687	50%	N/A	\$0.76	0.00
Electric	Lodging	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	265	15	\$4,774	45%	95%	\$2.35	0.00
Electric	Lodging	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	338	15	\$4,774	45%	95%	\$1.84	0.00
Electric	Lodging	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	119	12	\$5,449	10%	85%	\$6.84	0.00
Electric	Lodging	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	152	12	\$5,449	10%	85%	\$5.37	0.00
Electric	Lodging	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	265	40	\$38,211	2.0%	100%	\$46.15	0.00
Electric	Lodging	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	338	40	\$38,211	2.0%	100%	\$36.25	0.00
Electric	Lodging	Package Terminal Ac	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	Existing	597	15	\$3,140	60%	95%	\$0.69	0.00
Electric	Lodging	Package Terminal Ac	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	Existing	760	15	\$3,099	60%	95%	\$0.53	0.00
Electric	Lodging	Package Terminal Ac	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	132	12	\$1,356	10%	60%	\$1.53	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Package Terminal Ac	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	169	12	\$1,356	10%	60%	\$1.20	0.00
Electric	Lodging	Package Terminal Ac	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4	25	\$7,184	45%	65%	\$169.74	0.00
Electric	Lodging	Package Terminal Ac	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	5	25	\$7,184	45%	65%	\$133.32	0.00
Electric	Lodging	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.92	25	\$3,456	25%	85%	\$381.25	0.00
Electric	Lodging	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1	25	\$3,456	25%	85%	\$299.44	0.00
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	335	25	\$127	15%	90%	\$0.04	985,283
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	335	25	\$127	80%	90%	\$0.04	985,283
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	426	25	\$127	15%	90%	\$0.03	212,072
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	426	25	\$127	80%	90%	\$0.03	212,072
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	305	25	\$1,901	15%	25%	\$0.63	0.00
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	389	25	\$1,901	15%	25%	\$0.50	0.00
Electric	Lodging	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	265	15	\$4,774	45%	95%	\$2.35	0.00
Electric	Lodging	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	338	15	\$4,774	45%	95%	\$1.84	0.00
Electric	Lodging	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	119	12	\$5,449	10%	85%	\$6.84	0.00
Electric	Lodging	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	152	12	\$5,449	10%	85%	\$5.37	0.00
Electric	Lodging	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	265	40	\$38,211	2.0%	100%	\$46.15	0.00
Electric	Lodging	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	338	40	\$38,211	2.0%	100%	\$36.25	0.00
Electric	Lodging	Package Terminal Ac	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	New	597	15	\$3,140	60%	95%	\$0.69	0.00
Electric	Lodging	Package Terminal Ac	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	New	760	15	\$3,099	60%	95%	\$0.53	0.00
Electric	Lodging	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.92	25	\$3,456	75%	85%	\$381.25	0.00
Electric	Lodging	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1	25	\$3,456	75%	85%	\$299.44	0.00
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	335	25	\$127	80%	90%	\$0.04	95,353
Electric	Lodging	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	426	25	\$127	80%	90%	\$0.03	130,787
Electric	Lodging	Package Terminal HP	PTHP (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER, 3.5 COP	Standard Efficiency - 10.2 EER, 3.0 COP	Per Building	Existing	1,086	9	\$10,307	100%	N/A	\$1.74	0.00
Electric	Lodging	Package Terminal HP	PTHP (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER, 3.5 COP	Standard Efficiency - 10.2 EER, 3.0 COP	Per Building	New	1,086	9	\$8,246	100%	N/A	\$1.39	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Package Terminal Hp	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	2,012	15	\$4,774	45%	95%	\$0.31	0.00
Electric	Lodging	Package Terminal Hp	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	2,313	12	\$5,449	10%	85%	\$0.35	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,459	40	\$38,211	2.0%	100%	\$8.40	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,459	40	\$38,211	2.0%	100%	\$8.40	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,565	40	\$38,211	2.0%	100%	\$4.78	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,565	40	\$38,211	2.0%	100%	\$4.78	0.00
Electric	Lodging	Package Terminal Hp	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	Existing	11,557	15	\$3,099	60%	95%	\$0.04	21,917,152
Electric	Lodging	Package Terminal Hp	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	Existing	11,557	15	\$3,140	60%	95%	\$0.04	23,595,066
Electric	Lodging	Package Terminal Hp	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,855	12	\$1,356	10%	60%	\$0.05	499,225
Electric	Lodging	Package Terminal Hp	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,855	12	\$1,356	10%	60%	\$0.05	537,444
Electric	Lodging	Package Terminal Hp	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,042	25	\$7,184	45%	65%	\$0.12	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1,294	25	\$3,456	25%	85%	\$0.27	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	21,572	25	\$12,824	15%	85%	\$0.06	5,909,520
Electric	Lodging	Package Terminal Hp	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	21,572	25	\$12,824	15%	85%	\$0.06	6,361,935
Electric	Lodging	Package Terminal Hp	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	2,845	25	\$3,957	15%	95%	\$0.14	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	758	25	\$31,528	10%	45%	\$4.24	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	758	25	\$31,528	10%	45%	\$4.24	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	8,198	25	\$31,528	10%	45%	\$0.39	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	8,198	25	\$31,528	10%	45%	\$0.39	0.00
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	2,269	25	\$127	15%	90%	\$0.01	965,773
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	2,269	25	\$127	15%	90%	\$0.01	5,693,041
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	2,269	25	\$127	80%	90%	\$0.01	965,773
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	2,269	25	\$127	80%	90%	\$0.01	5,693,041
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	2,834	25	\$1,901	15%	25%	\$0.07	216,139
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	2,834	25	\$1,901	15%	25%	\$0.07	232,686
Electric	Lodging	Package Terminal Hp	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	2,012	15	\$4,774	45%	95%	\$0.31	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Package Terminal Hp	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	2,313	12	\$5,449	10%	85%	\$0.35	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,459	40	\$38,211	2.0%	100%	\$8.40	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,459	40	\$38,211	2.0%	100%	\$8.40	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	2,565	40	\$38,211	2.0%	100%	\$4.78	0.00
Electric	Lodging	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	2,565	40	\$38,211	2.0%	100%	\$4.78	0.00
Electric	Lodging	Package Terminal Hp	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	New	11,557	15	\$3,099	60%	95%	\$0.04	2,797,094
Electric	Lodging	Package Terminal Hp	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	Per Building	New	11,557	15	\$3,140	60%	95%	\$0.04	2,406,111
Electric	Lodging	Package Terminal Hp	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1,294	25	\$3,456	75%	85%	\$0.27	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	2,845	25	\$3,957	15%	95%	\$0.14	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	758	25	\$3,295	95%	85%	\$0.44	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	758	25	\$3,295	95%	85%	\$0.44	0.00
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	8,198	25	\$3,295	95%	85%	\$0.04	1,624,075
Electric	Lodging	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	8,198	25	\$3,295	95%	85%	\$0.04	1,624,075
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	2,269	25	\$127	80%	90%	\$0.01	567,517
Electric	Lodging	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	2,269	25	\$127	80%	90%	\$0.01	601,112
Electric	Lodging	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	29	6	\$35	100%	N/A	\$0.31	0.00
Electric	Lodging	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	29	6	\$35	100%	N/A	\$0.31	7
Electric	Lodging	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	29	6	\$35	100%	N/A	\$0.31	11
Electric	Lodging	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	Existing	3,498	10	\$150	100%	N/A	\$0.01	1,185,785
Electric	Lodging	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	Existing	3,498	10	\$150	100%	N/A	\$0.01	1,186,542
Electric	Lodging	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	Existing	9,933	10	\$498	75%	N/A	\$0.01	11,885,293
Electric	Lodging	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	Existing	9,933	10	\$498	75%	N/A	\$0.01	12,016,061
Electric	Lodging	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$150	75%	25%	\$0.00	3,830,221
Electric	Lodging	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$150	75%	25%	\$0.00	4,125,359
Electric	Lodging	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	New	3,498	10	\$150	100%	N/A	\$0.01	222,640
Electric	Lodging	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	New	3,498	10	\$150	100%	N/A	\$0.01	261,872
Electric	Lodging	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	New	9,933	10	\$498	75%	N/A	\$0.01	2,163,996
Electric	Lodging	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	New	9,933	10	\$498	75%	N/A	\$0.01	2,547,605
Electric	Lodging	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	126	6	\$20	100%	N/A	\$0.04	7,847

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	126	6	\$20	100%	N/A	\$0.04	14,200
Electric	Lodging	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	126	6	\$20	100%	N/A	\$0.04	0.00
Electric	Lodging	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	Existing	717	10	\$595	5.0%	80%	\$0.14	0.00
Electric	Lodging	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	Existing	973	10	\$806	5.0%	80%	\$0.14	0.00
Electric	Lodging	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	New	521	10	\$432	5.0%	80%	\$0.14	0.00
Electric	Lodging	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	New	707	10	\$585	5.0%	80%	\$0.14	0.00
Electric	Lodging	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	798	20	\$2,170	100%	N/A	\$0.31	0.00
Electric	Lodging	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	894	20	\$2,911	100%	N/A	\$0.37	0.00
Electric	Lodging	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	701	20	\$170	100%	N/A	\$0.03	584,301
Electric	Lodging	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	701	20	\$170	100%	N/A	\$0.03	633,973
Electric	Lodging	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	223	20	\$76	100%	N/A	\$0.04	0.00
Electric	Lodging	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,471	20	\$577	8.8%	100%	\$0.01	3,049,619
Electric	Lodging	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,471	20	\$577	8.8%	100%	\$0.01	3,049,619
Electric	Lodging	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,582	20	\$559	8.8%	100%	\$0.01	3,351,578
Electric	Lodging	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	5,582	20	\$559	8.8%	100%	\$0.01	3,351,578
Electric	Lodging	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	798	20	\$2,170	100%	N/A	\$0.31	0.00
Electric	Lodging	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	894	20	\$2,911	100%	N/A	\$0.37	0.00
Electric	Lodging	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	701	20	\$170	100%	N/A	\$0.03	271,307
Electric	Lodging	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	701	20	\$170	100%	N/A	\$0.03	275,319
Electric	Lodging	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	223	20	\$76	100%	N/A	\$0.04	0.00
Electric	Lodging	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	284	15	\$4,774	45%	95%	\$2.19	0.00
Electric	Lodging	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	362	15	\$4,774	45%	95%	\$1.72	0.00
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	522	15	\$7,800	20%	65%	\$27.00	0.00
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	664	15	\$7,800	20%	65%	\$21.20	0.00
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	522	15	\$89,037	20%	65%	\$22.30	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	664	15	\$89,037	20%	65%	\$17.51	0.00
Electric	Lodging	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	128	12	\$5,449	10%	85%	\$6.38	0.00
Electric	Lodging	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	163	12	\$5,449	10%	85%	\$5.01	0.00
Electric	Lodging	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	284	40	\$38,211	2.0%	100%	\$43.08	0.00
Electric	Lodging	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	362	40	\$38,211	2.0%	100%	\$33.83	0.00
Electric	Lodging	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	142	12	\$1,356	10%	60%	\$1.43	0.00
Electric	Lodging	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	181	12	\$1,356	10%	60%	\$1.12	0.00
Electric	Lodging	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4	25	\$7,184	45%	65%	\$158.41	0.00
Electric	Lodging	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	5	25	\$7,184	45%	65%	\$124.42	0.00
Electric	Lodging	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.98	25	\$3,456	25%	85%	\$355.81	0.00
Electric	Lodging	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1	25	\$3,456	25%	85%	\$279.46	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	266	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	266	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	338	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	338	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	359	25	\$127	15%	90%	\$0.04	0.00
Electric	Lodging	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	457	25	\$127	15%	90%	\$0.03	0.00
Electric	Lodging	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	327	25	\$1,901	15%	25%	\$0.59	0.00
Electric	Lodging	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	417	25	\$1,901	15%	25%	\$0.46	0.00
Electric	Lodging	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	284	15	\$4,774	45%	95%	\$2.19	0.00
Electric	Lodging	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	362	15	\$4,774	45%	95%	\$1.72	0.00
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	522	15	\$86,240	20%	65%	\$21.60	0.00
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	664	15	\$86,240	20%	65%	\$16.96	0.00

Table F.2. Commercial Residential Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	522	15	\$71,232	20%	65%	\$17.84	0.00
Electric	Lodging	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	664	15	\$71,232	20%	65%	\$14.01	0.00
Electric	Lodging	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	128	12	\$5,449	10%	85%	\$6.38	0.00
Electric	Lodging	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	163	12	\$5,449	10%	85%	\$5.01	0.00
Electric	Lodging	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	284	40	\$38,211	2.0%	100%	\$43.08	0.00
Electric	Lodging	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	362	40	\$38,211	2.0%	100%	\$33.83	0.00
Electric	Lodging	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.98	25	\$3,456	75%	85%	\$355.81	0.00
Electric	Lodging	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1	25	\$3,456	75%	85%	\$279.46	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	266	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	266	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	338	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	338	9	\$48	100%	N/A	\$0.03	0.00
Electric	Lodging	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	359	25	\$127	80%	90%	\$0.04	0.00
Electric	Lodging	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	457	25	\$127	80%	90%	\$0.03	0.00
Electric	Lodging	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	6,608	15	\$89,075	20%	65%	\$1.76	0.00
Electric	Lodging	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	479	12	\$5,449	10%	85%	\$1.71	0.00
Electric	Lodging	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,064	12	\$1,356	10%	60%	\$0.19	0.00
Electric	Lodging	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,239	25	\$7,184	45%	65%	\$0.59	0.00
Electric	Lodging	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	265	25	\$3,456	25%	85%	\$1.33	0.00
Electric	Lodging	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3,719	25	\$12,824	15%	85%	\$0.35	0.00
Electric	Lodging	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	476	25	\$3,957	15%	95%	\$0.85	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,290	25	\$31,528	10%	45%	\$2.49	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,290	25	\$31,528	10%	45%	\$2.49	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	3,385	25	\$31,528	10%	45%	\$0.95	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	3,385	25	\$31,528	10%	45%	\$0.95	0.00
Electric	Lodging	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	6,608	15	\$61,084	20%	65%	\$1.21	0.00
Electric	Lodging	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	479	12	\$5,449	10%	85%	\$1.71	0.00
Electric	Lodging	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	265	25	\$3,456	75%	85%	\$1.33	0.00
Electric	Lodging	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	476	25	\$3,957	15%	95%	\$0.85	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,290	25	\$3,295	95%	85%	\$0.26	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,290	25	\$3,295	95%	85%	\$0.26	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	3,385	25	\$3,295	95%	85%	\$0.10	0.00
Electric	Lodging	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	3,385	25	\$3,295	95%	85%	\$0.10	0.00
Electric	Lodging	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	26	9	\$2	100%	N/A	\$0.02	129,935
Electric	Lodging	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	26	9	\$2	100%	N/A	\$0.02	130,892
Electric	Lodging	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	26	9	\$2	100%	N/A	\$0.02	16,771
Electric	Lodging	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	26	9	\$2	100%	N/A	\$0.02	19,695
Electric	Lodging	Space Heat	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	684	15	\$509	50%	95%	\$0.10	0.00
Electric	Lodging	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	6,847	15	\$77,371	5.0%	70%	\$1.48	0.00
Electric	Lodging	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	3,423	5	\$1,590	75%	75%	\$0.14	0.00
Electric	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	570	18	\$6,108	45%	85%	\$1.27	0.00
Electric	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	3,423	14	\$43,775	5.0%	95%	\$1.74	0.00
Electric	Lodging	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,027	12	\$5,449	10%	85%	\$0.80	0.00
Electric	Lodging	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	2,282	12	\$1,356	10%	60%	\$0.09	0.00
Electric	Lodging	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,656	25	\$7,184	45%	65%	\$0.28	0.00
Electric	Lodging	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	568	25	\$3,456	25%	85%	\$0.62	0.00
Electric	Lodging	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	684	20	\$1,392	45%	60%	\$0.23	0.00
Electric	Lodging	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	684	20	\$1,409	45%	60%	\$0.23	0.00
Electric	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	410	20	\$244	45%	85%	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	410	20	\$246	45%	85%	\$0.07	0.00
Electric	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	7,976	25	\$12,824	15%	85%	\$0.16	0.00
Electric	Lodging	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,021	25	\$3,957	15%	95%	\$0.39	0.00
Electric	Lodging	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	7,258	25	\$31,528	10%	45%	\$0.44	0.00
Electric	Lodging	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,853	7	\$5,016	90%	95%	\$0.39	0.00
Electric	Lodging	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	748	7	\$18,833	95%	95%	\$5.58	0.00
Electric	Lodging	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	3,423	5	\$1,590	25%	25%	\$0.14	0.00
Electric	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	3,423	14	\$43,775	5.0%	95%	\$1.74	0.00
Electric	Lodging	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,027	12	\$5,449	10%	85%	\$0.80	0.00
Electric	Lodging	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	568	25	\$3,456	75%	85%	\$0.62	0.00
Electric	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	410	20	\$244	45%	85%	\$0.07	0.00
Electric	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	410	20	\$246	45%	85%	\$0.07	0.00
Electric	Lodging	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,021	25	\$3,957	15%	95%	\$0.39	0.00
Electric	Lodging	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,766	25	\$3,295	95%	85%	\$0.12	0.00
Electric	Lodging	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	2,285	10	\$313	100%	N/A	\$0.02	6,026,153
Electric	Lodging	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	2,285	10	\$313	100%	N/A	\$0.02	6,287,057
Electric	Lodging	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	2,285	10	\$313	100%	N/A	\$0.02	1,099,594
Electric	Lodging	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	2,285	10	\$313	100%	N/A	\$0.02	1,288,380
Electric	Lodging	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	1,812	10	\$3,120	5.0%	90%	\$0.29	0.00
Electric	Lodging	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	2,719	15	\$77,371	5.0%	70%	\$3.72	0.00
Electric	Lodging	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	1,119	18	\$5,250	95%	45%	\$0.55	0.00
Electric	Lodging	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	92	15	\$167	95%	90%	\$0.24	0.00

Table F.2. Commercial † tric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	2,311	20	\$2,835	55%	65%	\$0.14	0.00
Electric	Lodging	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	449	7	\$127	65%	25%	\$0.06	0.00
Electric	Lodging	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	1,812	10	\$3,120	5.0%	90%	\$0.29	0.00
Electric	Lodging	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	1,119	18	\$5,250	95%	45%	\$0.55	0.00
Electric	Lodging	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	92	15	\$167	95%	90%	\$0.24	0.00
Electric	Lodging	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	2,311	20	\$2,835	55%	45%	\$0.14	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	1,050	9	\$402	25%	95%	\$0.07	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	495	14	\$165	5.0%	95%	\$0.05	15,532
Electric	Lodging	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	495	14	\$165	5.0%	95%	\$0.05	16,418
Electric	Lodging	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	1,101	10	\$7,070	55%	80%	\$1.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	26	12	\$71	10%	35%	\$0.41	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	263	12	\$150	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	263	12	\$150	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	278	12	\$160	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	278	12	\$160	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	241	12	\$150	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	241	12	\$150	60%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	255	12	\$157	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	255	12	\$157	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	220	12	\$509	75%	75%	\$0.35	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	4,406	25	\$15,998	2.5%	95%	\$0.37	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	851	9	\$10	95%	75%	\$0.00	757,097
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	851	9	\$10	95%	75%	\$0.00	800,256
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	350	9	\$5	95%	50%	\$0.00	207,830
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	350	9	\$5	95%	50%	\$0.00	219,678
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	132	9	\$211	95%	25%	\$0.29	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	644	4	\$195	95%	95%	\$0.11	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,399	10	\$185	95%	85%	\$0.01	2,851,916
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,399	10	\$185	95%	85%	\$0.01	2,851,916
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,442	10	\$190	95%	85%	\$0.01	3,052,174
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,442	10	\$190	95%	85%	\$0.01	3,052,174
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,741	10	\$465	95%	25%	\$0.03	676,493
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,741	10	\$465	95%	25%	\$0.03	676,493
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,776	10	\$470	95%	25%	\$0.03	723,996
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,776	10	\$470	95%	25%	\$0.03	723,996
Electric	Lodging	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	550	10	\$3,140	75%	85%	\$0.97	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	550	10	\$3,178	75%	85%	\$0.98	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	13,153	15	\$6,449	75%	N/A	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	12,999	15	\$3,855	75%	N/A	\$0.06	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	1,050	9	\$402	25%	95%	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	495	14	\$165	5.0%	95%	\$0.05	1,241
Electric	Lodging	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	495	14	\$165	5.0%	95%	\$0.05	1,563
Electric	Lodging	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	1,092	10	\$7,070	55%	80%	\$1.10	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	26	12	\$71	10%	35%	\$0.41	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	253	12	\$145	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	253	12	\$145	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	268	12	\$152	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	268	12	\$152	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	232	12	\$142	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	232	12	\$142	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	245	12	\$152	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	245	12	\$152	60%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	4,369	25	\$12,799	2.5%	95%	\$0.30	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	844	9	\$10	95%	75%	\$0.00	60,760
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	844	9	\$10	95%	75%	\$0.00	76,313
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	347	9	\$5	95%	50%	\$0.00	16,679
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	347	9	\$5	95%	50%	\$0.00	20,948
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	644	4	\$195	95%	95%	\$0.11	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,399	10	\$185	95%	85%	\$0.01	289,864
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,399	10	\$185	95%	85%	\$0.01	289,864
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,442	10	\$190	95%	85%	\$0.01	233,674
Electric	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,442	10	\$190	95%	85%	\$0.01	233,674
Electric	Lodging	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	546	10	\$3,140	75%	85%	\$0.98	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	546	10	\$3,178	75%	85%	\$0.99	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	13,153	15	\$6,449	75%	N/A	\$0.09	0.00
Electric	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	12,999	15	\$3,855	75%	N/A	\$0.06	0.00
Electric	Lodging	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	1,050	9	\$402	25%	95%	\$0.07	0.00
Electric	Lodging	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	495	14	\$165	5.0%	95%	\$0.05	35,193
Electric	Lodging	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	495	14	\$165	5.0%	95%	\$0.05	37,201
Electric	Lodging	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	1,151	10	\$7,070	25%	80%	\$1.04	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	26	12	\$71	75%	35%	\$0.41	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	263	12	\$150	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	263	12	\$150	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	278	12	\$160	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	278	12	\$160	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	241	12	\$150	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	241	12	\$150	50%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	255	12	\$157	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	255	12	\$157	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	230	12	\$509	75%	75%	\$0.33	0.00
Electric	Lodging	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	4,604	25	\$15,998	2.5%	95%	\$0.35	0.00
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	889	9	\$10	95%	75%	\$0.00	1,792,700
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	889	9	\$10	95%	75%	\$0.00	1,895,005
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	366	9	\$5	95%	50%	\$0.00	492,113
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	366	9	\$5	95%	50%	\$0.00	520,197
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	138	9	\$211	95%	25%	\$0.28	0.00
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	644	4	\$195	95%	95%	\$0.11	0.00
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,399	10	\$185	95%	85%	\$0.01	6,461,768
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,399	10	\$185	95%	85%	\$0.01	6,461,768
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,442	10	\$190	95%	85%	\$0.01	6,915,907
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	3,442	10	\$190	95%	85%	\$0.01	6,915,907
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,741	10	\$465	95%	25%	\$0.03	1,532,775
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,741	10	\$465	95%	25%	\$0.03	1,532,775
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,776	10	\$470	95%	25%	\$0.03	1,640,499
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2,776	10	\$470	95%	25%	\$0.03	1,640,499
Electric	Lodging	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	575	10	\$3,140	75%	85%	\$0.93	0.00
Electric	Lodging	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	575	10	\$3,178	75%	85%	\$0.94	0.00
Electric	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	12,164	15	\$33,114	75%	N/A	\$0.40	0.00
Electric	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	711	15	\$1,445	100%	N/A	\$0.27	0.00
Electric	Lodging	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	1,050	9	\$402	25%	95%	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	495	14	\$165	5.0%	95%	\$0.05	3,690
Electric	Lodging	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	495	14	\$165	5.0%	95%	\$0.05	4,582
Electric	Lodging	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	1,116	10	\$7,070	25%	80%	\$1.08	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	26	12	\$71	75%	35%	\$0.41	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	253	12	\$145	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	253	12	\$145	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	268	12	\$152	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	268	12	\$152	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	232	12	\$142	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	232	12	\$142	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	245	12	\$152	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	245	12	\$152	50%	95%	\$0.09	0.00
Electric	Lodging	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	4,466	25	\$12,799	2.5%	95%	\$0.29	0.00
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	862	9	\$10	95%	75%	\$0.00	184,592
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	862	9	\$10	95%	75%	\$0.00	228,756
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	355	9	\$5	95%	50%	\$0.00	50,672
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	355	9	\$5	95%	50%	\$0.00	62,795
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	644	4	\$195	95%	95%	\$0.11	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,399	10	\$185	95%	85%	\$0.01	850,010
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,399	10	\$185	95%	85%	\$0.01	850,010
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,442	10	\$190	95%	85%	\$0.01	694,479
Electric	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	3,442	10	\$190	95%	85%	\$0.01	694,479
Electric	Lodging	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	558	10	\$3,140	75%	85%	\$0.96	0.00
Electric	Lodging	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	558	10	\$3,178	75%	85%	\$0.97	0.00
Electric	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	12,164	15	\$33,114	75%	N/A	\$0.40	400
Electric	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	12,164	15	\$33,114	75%	N/A	\$0.40	897
Electric	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	711	15	\$1,445	100%	N/A	\$0.27	-687,8876
Electric	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	711	15	\$1,445	100%	N/A	\$0.27	-75,023268
Electric	Miscellaneous	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	365	4	\$41	100%	N/A	\$0.04	621,649
Electric	Miscellaneous	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	365	4	\$41	100%	N/A	\$0.04	689,849
Electric	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	563	4	\$42	95%	85%	\$0.03	15,132,590
Electric	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	563	4	\$42	95%	85%	\$0.03	17,145,153
Electric	Miscellaneous	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	365	4	\$41	100%	N/A	\$0.04	220,474
Electric	Miscellaneous	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	365	4	\$41	100%	N/A	\$0.04	241,248
Electric	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	563	4	\$42	95%	85%	\$0.03	1,873,190
Electric	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	563	4	\$42	95%	85%	\$0.03	2,124,185
Electric	Miscellaneous	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	16	12	\$8	1.0%	90%	\$0.08	0.00
Electric	Miscellaneous	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	10	12	\$27	1.0%	70%	\$0.39	0.00
Electric	Miscellaneous	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	18	12	\$4	1.0%	55%	\$0.03	2,616
Electric	Miscellaneous	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	18	12	\$4	1.0%	55%	\$0.03	2,864
Electric	Miscellaneous	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	26	12	\$17	1.0%	85%	\$0.10	0.00
Electric	Miscellaneous	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	44	12	\$24	1.0%	75%	\$0.08	0.00
Electric	Miscellaneous	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	16	12	\$8	1.0%	90%	\$0.08	0.00
Electric	Miscellaneous	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	10	12	\$27	1.0%	70%	\$0.39	0.00
Electric	Miscellaneous	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	18	12	\$4	1.0%	55%	\$0.03	297

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	18	12	\$4	1.0%	55%	\$0.03	349
Electric	Miscellaneous	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	26	12	\$17	1.0%	85%	\$0.10	0.00
Electric	Miscellaneous	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	44	12	\$24	1.0%	75%	\$0.08	0.00
Electric	Miscellaneous	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	192	15	\$219	25%	95%	\$0.15	0.00
Electric	Miscellaneous	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	192	15	\$219	25%	95%	\$0.15	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	898	10	\$7,657	25%	95%	\$1.45	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	898	10	\$7,657	25%	95%	\$1.45	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	594	10	\$5,970	75%	95%	\$1.71	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	594	10	\$5,970	75%	95%	\$1.71	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	594	15	\$17,779	45%	30%	\$3.91	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	594	15	\$17,779	45%	30%	\$3.91	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	80	15	\$185	90%	90%	\$0.30	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	80	15	\$185	90%	90%	\$0.30	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	127	15	\$294	90%	90%	\$0.30	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	127	15	\$294	90%	90%	\$0.30	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	48	15	\$85	75%	90%	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	48	15	\$85	75%	90%	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	76	15	\$137	75%	90%	\$0.24	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	76	15	\$137	75%	90%	\$0.24	0.00
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	2,492	20	\$5,702	100%	N/A	\$0.26	0.00
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - High Efficiency	High Efficiency - 0.71 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	830	20	\$1,900	100%	N/A	\$0.26	0.00
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	1,853	20	\$4,240	100%	N/A	\$0.26	0.00

Table F.2. Commercial Building Energy Efficiency Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,564	15	\$26,640	5.0%	70%	\$0.98	0.00
Electric	Miscellaneous	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,564	15	\$26,640	5.0%	70%	\$0.98	0.00
Electric	Miscellaneous	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,188	15	\$3,067	45%	95%	\$0.34	0.00
Electric	Miscellaneous	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,188	15	\$3,067	45%	95%	\$0.34	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	950	7	\$946	10%	95%	\$0.22	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	950	7	\$946	10%	95%	\$0.22	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	1,663	15	\$85	65%	35%	\$0.01	2,451,177
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	1,663	15	\$85	65%	35%	\$0.01	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	475	13	\$685	75%	75%	\$0.21	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	475	13	\$685	75%	75%	\$0.21	0.00
Electric	Miscellaneous	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,782	5	\$547	75%	75%	\$0.09	5,093,372
Electric	Miscellaneous	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,782	5	\$547	75%	75%	\$0.09	0.00
Electric	Miscellaneous	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	534	12	\$5,450	1.0%	85%	\$1.53	0.00
Electric	Miscellaneous	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	534	12	\$5,450	1.0%	85%	\$1.53	0.00
Electric	Miscellaneous	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,188	40	\$88,774	2.0%	100%	\$6.63	0.00
Electric	Miscellaneous	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,188	40	\$88,774	2.0%	100%	\$6.63	0.00
Electric	Miscellaneous	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	594	12	\$116	10%	60%	\$0.03	149,967
Electric	Miscellaneous	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	594	12	\$116	10%	60%	\$0.03	0.00
Electric	Miscellaneous	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	19	25	\$4,615	45%	65%	\$24.39	0.00
Electric	Miscellaneous	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	19	25	\$4,615	45%	65%	\$24.39	0.00
Electric	Miscellaneous	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	4	25	\$2,219	25%	85%	\$54.78	0.00
Electric	Miscellaneous	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	4	25	\$2,219	25%	85%	\$54.78	0.00
Electric	Miscellaneous	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,485	7	\$1,727	90%	95%	\$0.26	0.00
Electric	Miscellaneous	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,485	7	\$1,727	90%	95%	\$0.26	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	1,188	3	\$0.87	95%	20%	\$0.00	1,516,390
Electric	Miscellaneous	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	1,188	3	\$0.87	95%	20%	\$0.00	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	537	10	\$1,028	35%	70%	\$0.32	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	537	10	\$1,028	35%	70%	\$0.32	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	846	10	\$1,028	35%	70%	\$0.21	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	846	10	\$1,028	35%	70%	\$0.21	0.00
Electric	Miscellaneous	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,499	25	\$10	15%	90%	\$0.00	1,137,478
Electric	Miscellaneous	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,499	25	\$10	15%	90%	\$0.00	0.00
Electric	Miscellaneous	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,367	25	\$163	15%	25%	\$0.01	216,668
Electric	Miscellaneous	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,367	25	\$163	15%	25%	\$0.01	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	743	10	\$6,892	25%	95%	\$1.57	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	743	10	\$6,892	25%	95%	\$1.57	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	491	10	\$5,970	0.0%	0%	\$2.06	0.00
Electric	Miscellaneous	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	491	10	\$5,970	0.0%	0%	\$2.06	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	48	15	\$85	95%	90%	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	48	15	\$85	95%	90%	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	76	15	\$137	95%	90%	\$0.24	0.00
Electric	Miscellaneous	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	76	15	\$137	95%	90%	\$0.24	0.00
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	2,492	20	\$5,133	100%	N/A	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - High Efficiency	High Efficiency - 0.71 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	830	20	\$1,711	100%	N/A	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	1,853	20	\$3,816	100%	N/A	\$0.23	22
Electric	Miscellaneous	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	1,853	20	\$3,816	100%	N/A	\$0.23	0.00
Electric	Miscellaneous	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	322	7	\$6,485	95%	95%	\$4.46	0.00
Electric	Miscellaneous	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	322	7	\$6,485	95%	95%	\$4.46	0.00
Electric	Miscellaneous	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	983	15	\$3,067	45%	95%	\$0.41	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	983	15	\$3,067	45%	95%	\$0.41	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	787	7	\$851	10%	95%	\$0.24	0.00
Electric	Miscellaneous	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	787	7	\$851	10%	95%	\$0.24	0.00
Electric	Miscellaneous	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,475	5	\$547	25%	25%	\$0.11	0.00
Electric	Miscellaneous	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,475	5	\$547	25%	25%	\$0.11	0.00
Electric	Miscellaneous	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	442	12	\$5,450	1.0%	85%	\$1.85	0.00
Electric	Miscellaneous	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	442	12	\$5,450	1.0%	85%	\$1.85	0.00
Electric	Miscellaneous	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	983	40	\$88,774	2.0%	100%	\$8.01	0.00
Electric	Miscellaneous	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	983	40	\$88,774	2.0%	100%	\$8.01	0.00
Electric	Miscellaneous	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3	25	\$2,219	75%	85%	\$66.15	0.00
Electric	Miscellaneous	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3	25	\$2,219	75%	85%	\$66.15	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	537	10	\$1,028	0.0%	0%	\$0.32	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	537	10	\$1,028	0.0%	0%	\$0.32	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	846	10	\$1,028	0.0%	0%	\$0.21	0.00
Electric	Miscellaneous	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	846	10	\$1,028	0.0%	0%	\$0.21	0.00
Electric	Miscellaneous	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,241	25	\$10	80%	90%	\$0.00	0.00
Electric	Miscellaneous	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,241	25	\$10	80%	90%	\$0.00	656,889
Electric	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	199	15	\$219	50%	95%	\$0.14	0.00
Electric	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	208	15	\$219	50%	95%	\$0.14	806,403
Electric	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,681	15	\$26,640	15%	70%	\$0.95	0.00
Electric	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,862	15	\$26,640	15%	70%	\$0.90	0.00
Electric	Miscellaneous	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,227	15	\$3,067	45%	95%	\$0.33	0.00
Electric	Miscellaneous	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,287	15	\$3,067	45%	95%	\$0.31	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	357	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	912	15	\$883	100%	N/A	\$0.13	0.00
Electric	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	1,840	10	\$5,521	10%	70%	\$0.51	0.00
Electric	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	1,931	10	\$5,521	10%	70%	\$0.49	0.00
Electric	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,840	5	\$547	75%	75%	\$0.09	17,031,335
Electric	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,931	5	\$547	75%	75%	\$0.08	10,742,826
Electric	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	306	18	\$2,103	45%	85%	\$0.81	0.00
Electric	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	321	18	\$2,103	45%	85%	\$0.77	0.00
Electric	Miscellaneous	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	7,558	15	\$-18506.062	35%	N/A	\$-0.41	8,901,080
Electric	Miscellaneous	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	7,558	15	\$-18506.062	35%	N/A	\$-0.41	14,985,902
Electric	Miscellaneous	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	552	12	\$5,450	1.0%	85%	\$1.48	0.00
Electric	Miscellaneous	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	579	12	\$5,450	1.0%	85%	\$1.41	0.00
Electric	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,227	40	\$88,774	2.0%	100%	\$6.42	0.00
Electric	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,287	40	\$88,774	2.0%	100%	\$6.12	0.00
Electric	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	613	12	\$116	10%	60%	\$0.03	504,941
Electric	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	643	12	\$116	10%	60%	\$0.03	317,679
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	19	25	\$4,615	45%	65%	\$23.62	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	20	25	\$4,615	45%	65%	\$22.51	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	4	25	\$2,219	25%	85%	\$53.03	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	4	25	\$2,219	25%	85%	\$50.55	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	368	20	\$469	45%	60%	\$0.14	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	386	20	\$745	45%	60%	\$0.22	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	220	20	\$82	45%	85%	\$0.04	1,155,363
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	231	20	\$131	45%	85%	\$0.06	657,600
Electric	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,534	7	\$1,727	90%	95%	\$0.25	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,609	7	\$1,727	90%	95%	\$0.24	0.00
Electric	Miscellaneous	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	1,227	5	\$1,558	95%	50%	\$0.37	0.00
Electric	Miscellaneous	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	1,287	5	\$1,558	95%	50%	\$0.35	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	537	10	\$1,028	35%	70%	\$0.32	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	537	10	\$1,028	35%	70%	\$0.32	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	846	10	\$1,028	35%	70%	\$0.21	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	846	10	\$1,028	35%	70%	\$0.21	0.00
Electric	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,548	25	\$10	15%	90%	\$0.00	3,707,912
Electric	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,624	25	\$10	15%	90%	\$0.00	2,322,730
Electric	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,412	25	\$163	15%	25%	\$0.01	729,524
Electric	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,481	25	\$163	15%	25%	\$0.01	455,621
Electric	Miscellaneous	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	373	7	\$6,485	95%	95%	\$3.85	0.00
Electric	Miscellaneous	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	390	7	\$6,485	95%	95%	\$3.69	0.00
Electric	Miscellaneous	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,138	15	\$3,067	45%	95%	\$0.35	0.00
Electric	Miscellaneous	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,189	15	\$3,067	45%	95%	\$0.34	0.00
Electric	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	357	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	912	15	\$707	100%	N/A	\$0.10	0.00
Electric	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	912	15	\$707	100%	N/A	\$0.10	310,649
Electric	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,707	5	\$547	25%	25%	\$0.09	137,769
Electric	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,784	5	\$547	25%	25%	\$0.09	111,295
Electric	Miscellaneous	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	7,558	15	-\$13492.178	35%	N/A	\$-0.31	2,716,696
Electric	Miscellaneous	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	7,558	15	-\$13492.178	35%	N/A	\$-0.31	3,067,273
Electric	Miscellaneous	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	512	12	\$5,450	1.0%	85%	\$1.60	0.00
Electric	Miscellaneous	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	535	12	\$5,450	1.0%	85%	\$1.53	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,138	40	\$88,774	2.0%	100%	\$6.92	0.00
Electric	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,189	40	\$88,774	2.0%	100%	\$6.62	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3	25	\$2,219	75%	85%	\$57.18	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	4	25	\$2,219	75%	85%	\$54.71	0.00
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	204	20	\$82	45%	85%	\$0.05	73,301
Electric	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	214	20	\$131	45%	85%	\$0.07	63,681
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	537	10	\$1,028	0.0%	0%	\$0.32	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	537	10	\$1,028	0.0%	0%	\$0.32	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	846	10	\$1,028	0.0%	0%	\$0.21	0.00
Electric	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	846	10	\$1,028	0.0%	0%	\$0.21	0.00
Electric	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,436	25	\$10	80%	90%	\$0.00	1,346,605
Electric	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,501	25	\$10	80%	90%	\$0.00	1,180,950
Electric	Miscellaneous	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	36	6	\$0.87	100%	N/A	\$0.01	1,234,929
Electric	Miscellaneous	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	36	6	\$0.87	100%	N/A	\$0.01	1,316,272
Electric	Miscellaneous	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	36	6	\$0.87	100%	N/A	\$0.01	196,410
Electric	Miscellaneous	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	36	6	\$0.87	100%	N/A	\$0.01	219,735
Electric	Miscellaneous	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	49	4	\$56	100%	N/A	\$0.40	0.00
Electric	Miscellaneous	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	49	4	\$56	100%	N/A	\$0.40	49
Electric	Miscellaneous	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	49	4	\$56	100%	N/A	\$0.40	65
Electric	Miscellaneous	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	4	20	\$0.87	100%	N/A	\$0.02	0.00
Electric	Miscellaneous	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	13	20	\$0.87	100%	N/A	\$0.01	137,879
Electric	Miscellaneous	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	13	20	\$0.87	100%	N/A	\$0.01	-2398.389888
Electric	Miscellaneous	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	92	20	\$13	8.8%	100%	\$0.02	350,941
Electric	Miscellaneous	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	92	20	\$13	8.8%	100%	\$0.02	350,941
Electric	Miscellaneous	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	109	20	\$13	8.8%	100%	\$0.01	365,678
Electric	Miscellaneous	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	109	20	\$13	8.8%	100%	\$0.01	365,678
Electric	Miscellaneous	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	4	20	\$0.87	100%	N/A	\$0.02	0.00
Electric	Miscellaneous	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	13	20	\$0.87	100%	N/A	\$0.01	47,842
Electric	Miscellaneous	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	13	20	\$0.87	100%	N/A	\$0.01	-311.419752

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	632	15	\$3,289	100%	N/A	\$0.68	0.00
Electric	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	1,281	15	\$6,579	100%	N/A	\$0.67	0.00
Electric	Miscellaneous	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	290	15	\$219	50%	95%	\$0.10	459,951
Electric	Miscellaneous	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	290	15	\$219	50%	95%	\$0.10	1,005,017
Electric	Miscellaneous	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	4,805	15	\$26,640	15%	70%	\$0.72	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	594	15	\$3,067	45%	95%	\$0.67	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	594	15	\$3,067	45%	95%	\$0.67	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,015	15	\$3,067	45%	95%	\$0.39	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,015	15	\$3,067	45%	95%	\$0.39	0.00
Electric	Miscellaneous	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	2,402	5	\$547	75%	75%	\$0.07	5,488,246
Electric	Miscellaneous	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	2,402	5	\$547	75%	75%	\$0.07	11,992,099
Electric	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	400	18	\$2,103	45%	85%	\$0.62	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	879	14	\$15,073	5.0%	95%	\$2.33	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	879	14	\$15,073	5.0%	95%	\$2.33	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,511	14	\$15,073	5.0%	95%	\$1.36	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,511	14	\$15,073	5.0%	95%	\$1.36	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	720	12	\$5,450	1.0%	85%	\$1.14	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	594	40	\$88,774	2.0%	100%	\$13.26	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	594	40	\$88,774	2.0%	100%	\$13.26	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,015	40	\$88,774	2.0%	100%	\$7.76	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,015	40	\$88,774	2.0%	100%	\$7.76	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	4,634	30	\$95,029	5.0%	N/A	\$3.93	0.00
Electric	Miscellaneous	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,201	12	\$116	10%	60%	\$0.01	244,964
Electric	Miscellaneous	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,201	12	\$116	10%	60%	\$0.01	531,575
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	694	25	\$4,615	45%	65%	\$0.68	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	694	25	\$4,615	45%	65%	\$0.68	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,175	25	\$4,615	45%	65%	\$0.40	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,175	25	\$4,615	45%	65%	\$0.40	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	148	25	\$2,219	25%	85%	\$1.52	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	148	25	\$2,219	25%	85%	\$1.52	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	251	25	\$2,219	25%	85%	\$0.90	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	251	25	\$2,219	25%	85%	\$0.90	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	480	20	\$469	45%	60%	\$0.11	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	480	20	\$745	45%	60%	\$0.17	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	288	20	\$82	45%	85%	\$0.03	372,309
Electric	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	288	20	\$131	45%	85%	\$0.05	733,408
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,761	25	\$8,238	15%	85%	\$0.48	1,483,574
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,761	25	\$8,238	15%	85%	\$0.48	1,483,574
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3,758	25	\$8,238	15%	85%	\$0.22	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3,758	25	\$8,238	15%	85%	\$0.22	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	256	25	\$2,541	15%	95%	\$1.01	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	256	25	\$2,541	15%	95%	\$1.01	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	528	25	\$2,541	15%	95%	\$0.49	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	528	25	\$2,541	15%	95%	\$0.49	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,554	25	\$20,251	10%	45%	\$0.81	0.00
Electric	Miscellaneous	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,002	7	\$1,727	90%	95%	\$0.19	0.00
Electric	Miscellaneous	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,002	7	\$1,727	90%	95%	\$0.19	13,507,615
Electric	Miscellaneous	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	1,601	3	\$1,558	95%	50%	\$0.44	0.00
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	199	10	\$1,028	35%	70%	\$0.88	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	199	10	\$1,028	35%	70%	\$0.88	0.00
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	536	10	\$1,028	35%	70%	\$0.33	0.00
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	536	10	\$1,028	35%	70%	\$0.33	0.00
Electric	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	752	25	\$10	15%	90%	\$0.00	440,073
Electric	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	752	25	\$10	15%	90%	\$0.00	954,962
Electric	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	916	25	\$163	15%	25%	\$0.02	116,297
Electric	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	916	25	\$163	15%	25%	\$0.02	252,365
Electric	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	632	15	\$2,631	100%	N/A	\$0.54	0.00
Electric	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,281	15	\$5,263	100%	N/A	\$0.54	366
Electric	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,281	15	\$5,263	100%	N/A	\$0.54	435
Electric	Miscellaneous	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	485	7	\$6,485	95%	95%	\$2.96	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	549	15	\$3,067	45%	95%	\$0.73	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	549	15	\$3,067	45%	95%	\$0.73	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	938	15	\$3,067	45%	95%	\$0.43	0.00
Electric	Miscellaneous	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	938	15	\$3,067	45%	95%	\$0.43	0.00
Electric	Miscellaneous	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	2,220	5	\$547	25%	25%	\$0.07	76,651
Electric	Miscellaneous	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	2,220	5	\$547	25%	25%	\$0.07	130,880
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	812	14	\$15,073	5.0%	95%	\$2.53	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	812	14	\$15,073	5.0%	95%	\$2.53	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,396	14	\$15,073	5.0%	95%	\$1.47	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,396	14	\$15,073	5.0%	95%	\$1.47	0.00
Electric	Miscellaneous	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	666	12	\$5,450	1.0%	85%	\$1.23	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	549	40	\$88,774	2.0%	100%	\$14.35	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	549	40	\$88,774	2.0%	100%	\$14.35	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	938	40	\$88,774	2.0%	100%	\$8.40	0.00
Electric	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	938	40	\$88,774	2.0%	100%	\$8.40	0.00
Electric	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	4,634	30	\$183	5.0%	N/A	\$1.99	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	137	25	\$2,219	75%	85%	\$1.64	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	137	25	\$2,219	75%	85%	\$1.64	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	232	25	\$2,219	75%	85%	\$0.97	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	232	25	\$2,219	75%	85%	\$0.97	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	266	20	\$82	45%	85%	\$0.03	40,783
Electric	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	266	20	\$131	45%	85%	\$0.06	74,887
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	236	25	\$2,541	15%	95%	\$1.09	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	236	25	\$2,541	15%	95%	\$1.09	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	488	25	\$2,541	15%	95%	\$0.53	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	488	25	\$2,541	15%	95%	\$0.53	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	218	25	\$2,117	95%	85%	\$0.99	0.00
Electric	Miscellaneous	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	218	25	\$2,117	95%	85%	\$0.99	128,674
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	New	199	10	\$1,028	0.0%	0%	\$0.88	0.00
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	New	199	10	\$1,028	0.0%	0%	\$0.88	0.00
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	New	536	10	\$1,028	0.0%	0%	\$0.33	0.00
Electric	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	Per Building	New	536	10	\$1,028	0.0%	0%	\$0.33	0.00
Electric	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	695	25	\$10	80%	90%	\$0.00	262,663
Electric	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	695	25	\$10	80%	90%	\$0.00	486,876
Electric	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	2,336	8	\$636	75%	70%	\$0.05	0.00
Electric	Miscellaneous	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,940	15	\$808	62%	90%	\$0.05	0.00
Electric	Miscellaneous	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,940	15	\$1,282	62%	90%	\$0.09	0.00
Electric	Miscellaneous	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	980	8	\$494	90%	90%	\$0.10	0.00
Electric	Miscellaneous	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	980	8	\$784	90%	90%	\$0.16	0.00
Electric	Miscellaneous	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	820	8	\$228	5.0%	50%	\$0.06	0.00
Electric	Miscellaneous	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	1,596	17	\$1,084	75%	50%	\$0.08	0.00
Electric	Miscellaneous	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	808	8	\$41	25%	25%	\$0.01	2,068,159

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	808	8	\$65	25%	25%	\$0.02	2,289,014
Electric	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	2,336	8	\$636	75%	70%	\$0.05	0.00
Electric	Miscellaneous	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,940	15	\$808	62%	90%	\$0.05	0.00
Electric	Miscellaneous	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,940	15	\$1,282	62%	90%	\$0.09	0.00
Electric	Miscellaneous	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	980	8	\$494	90%	90%	\$0.10	0.00
Electric	Miscellaneous	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	980	8	\$784	90%	90%	\$0.16	0.00
Electric	Miscellaneous	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	820	8	\$228	5.0%	50%	\$0.06	0.00
Electric	Miscellaneous	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	1,596	17	\$1,084	75%	50%	\$0.08	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	540	10	\$225	5.0%	75%	\$0.07	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	540	10	\$356	5.0%	75%	\$0.11	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,128	8	\$7,488	20%	85%	\$0.36	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,128	8	\$7,488	20%	85%	\$0.36	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,202	8	\$7,488	20%	85%	\$0.29	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,202	8	\$7,488	20%	85%	\$0.29	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,096	8	\$5,616	20%	85%	\$0.36	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,096	8	\$5,616	20%	85%	\$0.36	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,901	8	\$5,616	20%	85%	\$0.29	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,901	8	\$5,616	20%	85%	\$0.29	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	138	6	\$50	10%	80%	\$0.06	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	Existing	84	6	\$42	5.0%	80%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,688	13	\$22,278	50%	N/A	\$0.87	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,688	13	\$22,278	50%	N/A	\$0.87	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,694	13	\$22,313	50%	N/A	\$0.87	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,694	13	\$22,313	50%	N/A	\$0.87	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	825	13	\$430	100%	N/A	\$0.11	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	825	13	\$430	100%	N/A	\$0.11	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	827	13	\$431	100%	N/A	\$0.11	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	827	13	\$431	100%	N/A	\$0.11	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,520	13	\$2,921	100%	N/A	\$0.32	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,520	13	\$2,921	100%	N/A	\$0.32	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,717	13	\$2,917	100%	N/A	\$0.28	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,717	13	\$2,917	100%	N/A	\$0.28	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,517	13	\$1,191	100%	N/A	\$0.10	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,517	13	\$1,191	100%	N/A	\$0.10	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,719	13	\$1,194	100%	N/A	\$0.09	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,719	13	\$1,194	100%	N/A	\$0.09	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,459	8	\$494	75%	90%	\$0.04	61,334,676
Electric	Miscellaneous	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,459	8	\$784	75%	90%	\$0.06	0.00
Electric	Miscellaneous	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,027	8	\$41	5.0%	25%	\$0.00	1,125,982
Electric	Miscellaneous	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,027	8	\$65	5.0%	25%	\$0.01	1,038,613

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Lighting Interior Hids	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,723	15	\$867	100%	N/A	\$0.08	0.00
Electric	Miscellaneous	Lighting Interior Hids	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	2,250	15	\$3,696	95%	N/A	\$0.21	0.00
Electric	Miscellaneous	Lighting Interior Hids	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,906	20	\$27,460	50%	N/A	\$1.58	0.00
Electric	Miscellaneous	Lighting Interior Hids	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,159	13	\$-8,764	25%	N/A	\$-0.03	1,972,840
Electric	Miscellaneous	Lighting Interior Hids	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,159	13	\$-8,764	25%	N/A	\$-0.03	2,106,482
Electric	Miscellaneous	Lighting Interior Hids	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	522	15	\$17,353	100%	N/A	\$4.20	0.00
Electric	Miscellaneous	Lighting Interior Hids	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	868	8	\$494	75%	90%	\$0.11	0.00
Electric	Miscellaneous	Lighting Interior Hids	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	868	8	\$784	75%	90%	\$0.18	0.00
Electric	Miscellaneous	Lighting Interior Hids	Time Clock	Time Clock	No Controls	Per Building	Existing	715	8	\$41	10%	25%	\$0.01	760,836
Electric	Miscellaneous	Lighting Interior Hids	Time Clock	Time Clock	No Controls	Per Building	Existing	715	8	\$65	10%	25%	\$0.02	842,023
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	187	11	\$72	95%	65%	\$0.06	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	187	11	\$72	95%	65%	\$0.06	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	298	11	\$115	95%	65%	\$0.06	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	298	11	\$115	95%	65%	\$0.06	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	37	13	\$32	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	37	13	\$32	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	59	13	\$51	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	59	13	\$51	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Bi-Level Control, Slairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Slairways	Per Building	New	658	10	\$225	5.0%	75%	\$0.06	127,287
Electric	Miscellaneous	Lighting Interior Other	Bi-Level Control, Slairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Slairways	Per Building	New	658	10	\$356	5.0%	75%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,152	8	\$7,488	20%	85%	\$0.48	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,152	8	\$7,488	20%	85%	\$0.48	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,972	8	\$7,488	20%	85%	\$0.38	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,972	8	\$7,488	20%	85%	\$0.38	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,364	8	\$5,616	20%	85%	\$0.48	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,364	8	\$5,616	20%	85%	\$0.48	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,979	8	\$5,616	20%	85%	\$0.38	0.00
Electric	Miscellaneous	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,979	8	\$5,616	20%	85%	\$0.38	0.00
Electric	Miscellaneous	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	78	6	\$19	10%	80%	\$0.03	29,680
Electric	Miscellaneous	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	78	6	\$19	10%	80%	\$0.03	34,452
Electric	Miscellaneous	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	35	6	\$14	10%	80%	\$0.07	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	37	13	\$32	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	37	13	\$32	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	59	13	\$51	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	59	13	\$51	95%	95%	\$0.12	0.00
Electric	Miscellaneous	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	3,621	13	\$10,807	100%	N/A	\$0.43	0.00
Electric	Miscellaneous	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	3,621	13	\$10,807	100%	N/A	\$0.43	0.00
Electric	Miscellaneous	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	4,280	13	\$9,677	100%	N/A	\$0.32	0.00
Electric	Miscellaneous	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	4,280	13	\$9,677	100%	N/A	\$0.32	0.00
Electric	Miscellaneous	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,996	8	\$494	75%	90%	\$0.03	11,107,058
Electric	Miscellaneous	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,996	8	\$784	75%	90%	\$0.05	9,568,665

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,853	4	\$42	85%	N/A	\$-0.02	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,853	4	\$42	85%	N/A	\$-0.02	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	9,270	4	\$68	85%	N/A	\$-0.02	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	9,270	4	\$68	85%	N/A	\$-0.02	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,893	1	\$13	100%	N/A	\$0.01	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,893	1	\$13	100%	N/A	\$0.01	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	7,750	1	\$21	100%	N/A	\$0.01	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	7,750	1	\$21	100%	N/A	\$0.01	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,897	12	\$1,089	85%	N/A	\$0.01	21,438,482
Electric	Miscellaneous	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	9,341	12	\$1,727	85%	N/A	\$0.01	31,843,681
Electric	Miscellaneous	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	647	8	\$494	75%	90%	\$0.15	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	647	8	\$784	75%	90%	\$0.24	0.00
Electric	Miscellaneous	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	533	8	\$41	1.0%	25%	\$0.02	22,235
Electric	Miscellaneous	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	533	8	\$65	1.0%	25%	\$0.02	15,536
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	55	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	20	10	\$0.00	95%	75%	\$0.00	693,942

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	20	10	\$0.00	95%	75%	\$0.00	786,233
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	85	4	\$16	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	85	4	\$16	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.87	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	55	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	20	10	\$0.00	95%	75%	\$0.00	82,031
Electric	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	20	10	\$0.00	95%	75%	\$0.00	93,023
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	85	4	\$16	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	85	4	\$16	60%	90%	\$0.07	0.00
Electric	Miscellaneous	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	Existing	302	9	\$714	5.0%	N/A	\$0.43	0.00
Electric	Miscellaneous	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	Existing	385	9	\$714	5.0%	N/A	\$0.34	0.00
Electric	Miscellaneous	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	New	302	9	\$571	5.0%	N/A	\$0.35	0.00
Electric	Miscellaneous	Package Terminal AC	PTAC (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER	Standard Efficiency - 10.4 EER	Per Building	New	385	9	\$571	5.0%	N/A	\$0.27	0.00
Electric	Miscellaneous	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	158	15	\$3,067	45%	95%	\$2.53	0.00
Electric	Miscellaneous	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	201	15	\$3,067	45%	95%	\$1.99	0.00
Electric	Miscellaneous	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	71	12	\$5,450	1.0%	85%	\$11.47	0.00
Electric	Miscellaneous	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	90	12	\$5,450	1.0%	85%	\$9.01	0.00
Electric	Miscellaneous	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	158	40	\$88,774	2.0%	100%	\$49.70	0.00
Electric	Miscellaneous	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	201	40	\$88,774	2.0%	100%	\$39.04	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Package Terminal Ac	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	79	12	\$116	10%	60%	\$0.22	27,113
Electric	Miscellaneous	Package Terminal Ac	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	100	12	\$116	10%	60%	\$0.17	0.00
Electric	Miscellaneous	Package Terminal Ac	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2	25	\$4,615	45%	65%	\$182.83	0.00
Electric	Miscellaneous	Package Terminal Ac	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$4,615	45%	65%	\$143.60	0.00
Electric	Miscellaneous	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.55	25	\$2,219	25%	85%	\$410.55	0.00
Electric	Miscellaneous	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.70	25	\$2,219	25%	85%	\$322.46	0.00
Electric	Miscellaneous	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	200	25	\$10	15%	90%	\$0.01	198,241
Electric	Miscellaneous	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	254	25	\$10	15%	90%	\$0.00	151,122
Electric	Miscellaneous	Package Terminal Ac	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	182	25	\$163	15%	25%	\$0.09	38,886
Electric	Miscellaneous	Package Terminal Ac	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	232	25	\$163	15%	25%	\$0.07	29,732
Electric	Miscellaneous	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	158	15	\$3,067	45%	95%	\$2.53	0.00
Electric	Miscellaneous	Package Terminal Ac	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	201	15	\$3,067	45%	95%	\$1.99	0.00
Electric	Miscellaneous	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	71	12	\$5,450	1.0%	85%	\$11.47	0.00
Electric	Miscellaneous	Package Terminal Ac	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	90	12	\$5,450	1.0%	85%	\$9.01	0.00
Electric	Miscellaneous	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	158	40	\$88,774	2.0%	100%	\$49.70	0.00
Electric	Miscellaneous	Package Terminal Ac	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	201	40	\$88,774	2.0%	100%	\$39.04	0.00
Electric	Miscellaneous	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.55	25	\$2,219	75%	85%	\$410.55	0.00
Electric	Miscellaneous	Package Terminal Ac	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.70	25	\$2,219	75%	85%	\$322.46	0.00
Electric	Miscellaneous	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	200	25	\$10	80%	90%	\$0.01	102,321
Electric	Miscellaneous	Package Terminal Ac	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	254	25	\$10	80%	90%	\$0.00	93,198
Electric	Miscellaneous	Package Terminal HP	PTHP (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER, 3.5 COP	Standard Efficiency - 10.2 EER, 3.0 COP	Per Building	Existing	143	9	\$2,191	100%	N/A	\$2.81	0.00
Electric	Miscellaneous	Package Terminal HP	PTHP (10,000 Btuh) - High Efficiency	High Efficiency - 12.8 EER, 3.5 COP	Standard Efficiency - 10.2 EER, 3.0 COP	Per Building	New	143	9	\$1,752	100%	N/A	\$2.24	0.00
Electric	Miscellaneous	Package Terminal Hp	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	860	15	\$3,067	45%	95%	\$0.47	0.00
Electric	Miscellaneous	Package Terminal Hp	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	770	12	\$5,450	1.0%	85%	\$1.06	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	635	40	\$88,774	2.0%	100%	\$12.40	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	635	40	\$88,774	2.0%	100%	\$12.40	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,086	40	\$88,774	2.0%	100%	\$7.25	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,086	40	\$88,774	2.0%	100%	\$7.25	0.00
Electric	Miscellaneous	Package Terminal Hp	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,284	12	\$116	10%	60%	\$0.01	200,723
Electric	Miscellaneous	Package Terminal Hp	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,284	12	\$116	10%	60%	\$0.01	296,525
Electric	Miscellaneous	Package Terminal Hp	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,013	25	\$4,615	45%	65%	\$0.23	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	431	25	\$2,219	25%	85%	\$0.52	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	7,189	25	\$8,238	15%	85%	\$0.12	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	948	25	\$2,541	15%	95%	\$0.27	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	252	25	\$20,251	10%	45%	\$8.16	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	252	25	\$20,251	10%	45%	\$8.16	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,732	25	\$20,251	10%	45%	\$0.76	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,732	25	\$20,251	10%	45%	\$0.76	0.00
Electric	Miscellaneous	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	756	25	\$10	15%	90%	\$0.00	267,449
Electric	Miscellaneous	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	756	25	\$10	15%	90%	\$0.00	395,097
Electric	Miscellaneous	Package Terminal Hp	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	944	25	\$163	15%	25%	\$0.02	72,534
Electric	Miscellaneous	Package Terminal Hp	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	944	25	\$163	15%	25%	\$0.02	107,154
Electric	Miscellaneous	Package Terminal Hp	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	860	15	\$3,067	45%	95%	\$0.47	0.00
Electric	Miscellaneous	Package Terminal Hp	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	770	12	\$5,450	1.0%	85%	\$1.06	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	635	40	\$88,774	2.0%	100%	\$12.40	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	635	40	\$88,774	2.0%	100%	\$12.40	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,086	40	\$88,774	2.0%	100%	\$7.25	0.00
Electric	Miscellaneous	Package Terminal Hp	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,086	40	\$88,774	2.0%	100%	\$7.25	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	431	25	\$2,219	75%	85%	\$0.52	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	948	25	\$2,541	15%	95%	\$0.27	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	252	25	\$2,117	95%	85%	\$0.85	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	252	25	\$2,117	95%	85%	\$0.85	0.00
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,732	25	\$2,117	95%	85%	\$0.08	516,407
Electric	Miscellaneous	Package Terminal Hp	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,732	25	\$2,117	95%	85%	\$0.08	516,407
Electric	Miscellaneous	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	756	25	\$10	80%	90%	\$0.00	166,639

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Package Terminal Hp	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	756	25	\$10	80%	90%	\$0.00	210,278
Electric	Miscellaneous	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	98	6	\$123	100%	N/A	\$0.31	0.00
Electric	Miscellaneous	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	98	6	\$123	100%	N/A	\$0.31	133
Electric	Miscellaneous	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	98	6	\$123	100%	N/A	\$0.31	193
Electric	Miscellaneous	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	Existing	3,498	10	\$149	100%	N/A	\$0.01	587,109
Electric	Miscellaneous	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	Existing	3,498	10	\$149	100%	N/A	\$0.01	3,086,048
Electric	Miscellaneous	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	Existing	9,933	10	\$500	75%	N/A	\$0.01	5,880,922
Electric	Miscellaneous	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	Existing	9,933	10	\$500	75%	N/A	\$0.01	31,272,214
Electric	Miscellaneous	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$149	75%	25%	\$0.00	1,895,219
Electric	Miscellaneous	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$149	75%	25%	\$0.00	10,736,388
Electric	Miscellaneous	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	New	3,498	10	\$149	100%	N/A	\$0.01	129,576
Electric	Miscellaneous	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	New	3,498	10	\$149	100%	N/A	\$0.01	579,429
Electric	Miscellaneous	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	New	9,933	10	\$500	75%	N/A	\$0.01	1,260,572
Electric	Miscellaneous	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	New	9,933	10	\$500	75%	N/A	\$0.01	5,631,875
Electric	Miscellaneous	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	89	6	\$13	100%	N/A	\$0.04	28,786
Electric	Miscellaneous	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	89	6	\$13	100%	N/A	\$0.04	49,521
Electric	Miscellaneous	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	89	6	\$13	100%	N/A	\$0.04	0.00
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	311	8	\$26	5.0%	75%	\$0.02	473,427
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	311	8	\$26	5.0%	75%	\$0.02	473,427
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	311	8	\$26	5.0%	75%	\$0.02	530,155
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	311	8	\$26	5.0%	75%	\$0.02	530,155
Electric	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	268	15	\$64	2.5%	50%	\$0.03	136,085
Electric	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	268	15	\$64	2.5%	50%	\$0.03	152,392
Electric	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	185	15	\$20	2.5%	90%	\$0.01	169,248
Electric	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	185	15	\$20	2.5%	90%	\$0.01	189,528
Electric	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	26	15	\$17	2.5%	90%	\$0.09	0.00
Electric	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	26	15	\$17	2.5%	90%	\$0.09	0.00
Electric	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	26	15	\$17	2.5%	90%	\$0.09	0.00
Electric	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	26	15	\$17	2.5%	90%	\$0.09	0.00
Electric	Miscellaneous	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	Existing	181	10	\$150	1.0%	80%	\$0.14	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	Existing	246	10	\$204	1.0%	80%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	Existing	57	10	\$3,299	1.0%	70%	\$9.70	0.00
Electric	Miscellaneous	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	26	8	\$2	2.5%	95%	\$0.02	25,718
Electric	Miscellaneous	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	26	8	\$2	2.5%	95%	\$0.02	28,800
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	128	5	\$20	5.0%	90%	\$0.05	233,516
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	128	5	\$20	5.0%	90%	\$0.05	233,516
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	128	5	\$20	5.0%	90%	\$0.05	261,496
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	128	5	\$20	5.0%	90%	\$0.05	261,496
Electric	Miscellaneous	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	Existing	225	3	\$35	10%	90%	\$0.07	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	311	8	\$26	5.0%	20%	\$0.02	16,948
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	311	8	\$26	5.0%	20%	\$0.02	16,948
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	311	8	\$26	5.0%	20%	\$0.02	14,774
Electric	Miscellaneous	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	311	8	\$26	5.0%	20%	\$0.02	14,774
Electric	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	197	15	\$48	2.5%	50%	\$0.03	11,373
Electric	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	197	15	\$48	2.5%	50%	\$0.03	13,105
Electric	Miscellaneous	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	New	133	10	\$110	1.0%	80%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	New	180	10	\$149	1.0%	80%	\$0.14	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	New	42	10	\$3,299	1.0%	70%	\$13.22	0.00
Electric	Miscellaneous	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	19	8	\$1	2.5%	95%	\$0.02	2,205
Electric	Miscellaneous	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	19	8	\$1	2.5%	95%	\$0.02	2,530
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	14	15	\$13	35%	80%	\$0.12	0.00
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	128	5	\$20	5.0%	90%	\$0.05	31,401
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	128	5	\$20	5.0%	90%	\$0.05	31,401
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	128	5	\$20	5.0%	90%	\$0.05	27,373
Electric	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	128	5	\$20	5.0%	90%	\$0.05	27,373
Electric	Miscellaneous	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	New	82	3	\$9	5.0%	90%	\$0.05	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	24	4	\$18	15%	80%	\$0.26	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	52	15	\$57	2.5%	95%	\$0.14	0.00
Electric	Miscellaneous	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	165	20	\$450	100%	N/A	\$0.31	0.00
Electric	Miscellaneous	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	185	20	\$603	100%	N/A	\$0.36	0.00
Electric	Miscellaneous	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	145	20	\$35	100%	N/A	\$0.03	631,299
Electric	Miscellaneous	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	145	20	\$35	100%	N/A	\$0.03	651,146
Electric	Miscellaneous	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	46	20	\$15	100%	N/A	\$0.04	0.00
Electric	Miscellaneous	Refrigerator	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,135	20	\$120	8.8%	100%	\$0.01	3,132,224
Electric	Miscellaneous	Refrigerator	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,135	20	\$120	8.8%	100%	\$0.01	3,132,224
Electric	Miscellaneous	Refrigerator	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,158	20	\$116	8.8%	100%	\$0.01	3,621,158
Electric	Miscellaneous	Refrigerator	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,158	20	\$116	8.8%	100%	\$0.01	3,621,158
Electric	Miscellaneous	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	165	20	\$450	100%	N/A	\$0.31	0.00
Electric	Miscellaneous	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	185	20	\$603	100%	N/A	\$0.36	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	145	20	\$35	100%	N/A	\$0.03	278,656
Electric	Miscellaneous	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	145	20	\$35	100%	N/A	\$0.03	297,464
Electric	Miscellaneous	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	46	20	\$15	100%	N/A	\$0.04	0.00
Electric	Miscellaneous	Room Cooling	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	169	15	\$3,067	45%	95%	\$2.36	0.00
Electric	Miscellaneous	Room Cooling	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	216	15	\$3,067	45%	95%	\$1.85	0.00
Electric	Miscellaneous	Room Cooling	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	311	15	\$22,912	2.5%	65%	\$9.62	0.00
Electric	Miscellaneous	Room Cooling	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	396	15	\$22,912	2.5%	65%	\$7.56	0.00
Electric	Miscellaneous	Room Cooling	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	311	15	\$18,924	2.5%	65%	\$7.95	0.00
Electric	Miscellaneous	Room Cooling	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	396	15	\$18,924	2.5%	65%	\$6.24	0.00
Electric	Miscellaneous	Room Cooling	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	76	12	\$5,450	1.0%	85%	\$10.70	0.00
Electric	Miscellaneous	Room Cooling	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	97	12	\$5,450	1.0%	85%	\$8.41	0.00
Electric	Miscellaneous	Room Cooling	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	169	40	\$88,774	2.0%	100%	\$46.39	0.00
Electric	Miscellaneous	Room Cooling	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	216	40	\$88,774	2.0%	100%	\$36.43	0.00
Electric	Miscellaneous	Room Cooling	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	84	12	\$116	10%	60%	\$0.21	0.00
Electric	Miscellaneous	Room Cooling	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	108	12	\$116	10%	60%	\$0.16	0.00
Electric	Miscellaneous	Room Cooling	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2	25	\$4,615	45%	65%	\$170.63	0.00
Electric	Miscellaneous	Room Cooling	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$4,615	45%	65%	\$134.02	0.00
Electric	Miscellaneous	Room Cooling	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.59	25	\$2,219	25%	85%	\$383.16	0.00
Electric	Miscellaneous	Room Cooling	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.75	25	\$2,219	25%	85%	\$300.94	0.00
Electric	Miscellaneous	Room Cooling	Room Cooling - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Miscellaneous	Room Cooling	Room Cooling - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Miscellaneous	Room Cooling	Room Cooling - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	202	9	\$49	100%	N/A	\$0.05	0.00
Electric	Miscellaneous	Room Cooling	Room Cooling - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	202	9	\$49	100%	N/A	\$0.05	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	214	25	\$10	15%	90%	\$0.00	0.00
Electric	Miscellaneous	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	272	25	\$10	15%	90%	\$0.00	0.00
Electric	Miscellaneous	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	195	25	\$163	15%	25%	\$0.08	0.00
Electric	Miscellaneous	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	248	25	\$163	15%	25%	\$0.07	0.00
Electric	Miscellaneous	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	169	15	\$3,067	45%	95%	\$2.36	0.00
Electric	Miscellaneous	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	216	15	\$3,067	45%	95%	\$1.85	0.00
Electric	Miscellaneous	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	311	15	\$18,329	2.5%	65%	\$7.70	0.00
Electric	Miscellaneous	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	396	15	\$18,329	2.5%	65%	\$6.04	0.00
Electric	Miscellaneous	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	311	15	\$15,140	2.5%	65%	\$6.36	0.00
Electric	Miscellaneous	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	396	15	\$15,140	2.5%	65%	\$4.99	0.00
Electric	Miscellaneous	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	76	12	\$5,450	1.0%	85%	\$10.70	0.00
Electric	Miscellaneous	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	97	12	\$5,450	1.0%	85%	\$8.41	0.00
Electric	Miscellaneous	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	169	40	\$88,774	2.0%	100%	\$46.39	0.00
Electric	Miscellaneous	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	216	40	\$88,774	2.0%	100%	\$36.43	0.00
Electric	Miscellaneous	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.59	25	\$2,219	75%	85%	\$383.16	0.00
Electric	Miscellaneous	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.75	25	\$2,219	75%	85%	\$300.94	0.00
Electric	Miscellaneous	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Miscellaneous	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Miscellaneous	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	202	9	\$49	100%	N/A	\$0.05	0.00
Electric	Miscellaneous	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	202	9	\$49	100%	N/A	\$0.05	0.00
Electric	Miscellaneous	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	214	25	\$10	80%	90%	\$0.00	0.00
Electric	Miscellaneous	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	272	25	\$10	80%	90%	\$0.00	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	1,002	15	\$18,932	2.5%	65%	\$2.47	0.00
Electric	Miscellaneous	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	72	12	\$5,450	1.0%	85%	\$11.26	0.00
Electric	Miscellaneous	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	161	12	\$116	10%	60%	\$0.11	0.00
Electric	Miscellaneous	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	187	25	\$4,615	45%	65%	\$2.50	0.00
Electric	Miscellaneous	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	40	25	\$2,219	25%	85%	\$5.62	0.00
Electric	Miscellaneous	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	564	25	\$8,238	15%	85%	\$1.49	0.00
Electric	Miscellaneous	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	72	25	\$2,541	15%	95%	\$3.58	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	195	25	\$20,251	10%	45%	\$10.54	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	195	25	\$20,251	10%	45%	\$10.54	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	513	25	\$20,251	10%	45%	\$4.02	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	513	25	\$20,251	10%	45%	\$4.02	0.00
Electric	Miscellaneous	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	1,002	15	\$12,983	2.5%	65%	\$1.69	0.00
Electric	Miscellaneous	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	72	12	\$5,450	1.0%	85%	\$11.26	0.00
Electric	Miscellaneous	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	40	25	\$2,219	75%	85%	\$5.62	0.00
Electric	Miscellaneous	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	72	25	\$2,541	15%	95%	\$3.58	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	195	25	\$2,117	95%	85%	\$1.10	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	195	25	\$2,117	95%	85%	\$1.10	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	513	25	\$2,117	95%	85%	\$0.42	0.00
Electric	Miscellaneous	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	513	25	\$2,117	95%	85%	\$0.42	0.00
Electric	Miscellaneous	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	28	9	\$3	100%	N/A	\$0.02	683,973
Electric	Miscellaneous	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	28	9	\$3	100%	N/A	\$0.02	724,794
Electric	Miscellaneous	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	Existing	96	4	\$361	10%	65%	\$1.32	0.00
Electric	Miscellaneous	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	28	9	\$3	100%	N/A	\$0.02	92,869
Electric	Miscellaneous	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	28	9	\$3	100%	N/A	\$0.02	103,674
Electric	Miscellaneous	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	New	95	4	\$361	10%	65%	\$1.33	0.00

Table F.2. Commercial Building Energy Efficiency Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Space Heat	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	60	15	\$219	50%	95%	\$0.48	0.00
Electric	Miscellaneous	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	901	15	\$26,640	15%	70%	\$3.86	0.00
Electric	Miscellaneous	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	450	5	\$547	75%	75%	\$0.35	0.00
Electric	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	75	18	\$2,103	45%	85%	\$3.31	0.00
Electric	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	450	14	\$15,073	5.0%	95%	\$4.56	0.00
Electric	Miscellaneous	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	135	12	\$5,450	1.0%	85%	\$6.05	0.00
Electric	Miscellaneous	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	300	12	\$116	10%	60%	\$0.06	0.00
Electric	Miscellaneous	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	349	25	\$4,615	45%	65%	\$1.34	0.00
Electric	Miscellaneous	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	74	25	\$2,219	25%	85%	\$3.02	0.00
Electric	Miscellaneous	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	90	20	\$469	45%	60%	\$0.58	0.00
Electric	Miscellaneous	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	90	20	\$745	45%	60%	\$0.93	0.00
Electric	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	54	20	\$82	45%	85%	\$0.17	0.00
Electric	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	54	20	\$131	45%	85%	\$0.27	0.00
Electric	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,049	25	\$8,238	15%	85%	\$0.80	0.00
Electric	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	134	25	\$2,541	15%	95%	\$1.92	0.00
Electric	Miscellaneous	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	955	25	\$20,251	10%	45%	\$2.16	0.00
Electric	Miscellaneous	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	375	7	\$1,727	90%	95%	\$1.02	0.00
Electric	Miscellaneous	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	98	7	\$6,485	95%	95%	\$14.59	0.00
Electric	Miscellaneous	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	450	5	\$547	25%	25%	\$0.35	0.00
Electric	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	450	14	\$15,073	5.0%	95%	\$4.56	0.00
Electric	Miscellaneous	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	135	12	\$5,450	1.0%	85%	\$6.05	0.00
Electric	Miscellaneous	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	74	25	\$2,219	75%	85%	\$3.02	0.00
Electric	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	54	20	\$82	45%	85%	\$0.17	0.00
Electric	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	54	20	\$131	45%	85%	\$0.27	0.00
Electric	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	134	25	\$2,541	15%	95%	\$1.92	0.00
Electric	Miscellaneous	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	364	25	\$2,117	95%	85%	\$0.59	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	525	10	\$72	100%	N/A	\$0.02	7,147,817
Electric	Miscellaneous	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	525	10	\$72	100%	N/A	\$0.02	7,207,044
Electric	Miscellaneous	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	525	10	\$72	100%	N/A	\$0.02	1,315,071
Electric	Miscellaneous	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	525	10	\$72	100%	N/A	\$0.02	1,464,772
Electric	Miscellaneous	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	5,279	10	\$1,074	5.0%	90%	\$0.03	5,162,160
Electric	Miscellaneous	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	5,279	10	\$1,074	5.0%	90%	\$0.03	5,421,535
Electric	Miscellaneous	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	7,918	15	\$26,640	15%	70%	\$0.44	0.00
Electric	Miscellaneous	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	93	18	\$200	95%	65%	\$0.25	0.00
Electric	Miscellaneous	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	269	15	\$57	95%	90%	\$0.03	5,046,140
Electric	Miscellaneous	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	269	15	\$57	95%	90%	\$0.03	5,299,686
Electric	Miscellaneous	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	6,730	20	\$975	55%	65%	\$0.02	58,039,418
Electric	Miscellaneous	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	6,730	20	\$975	55%	65%	\$0.02	60,955,642
Electric	Miscellaneous	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	154	7	\$43	65%	25%	\$0.06	0.00
Electric	Miscellaneous	Ventilation And Circulation	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	Per Building	Existing	422	18	\$1,704	5.0%	85%	\$0.48	0.00
Electric	Miscellaneous	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	5,279	10	\$1,074	5.0%	90%	\$0.03	555,219
Electric	Miscellaneous	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	5,279	10	\$1,074	5.0%	90%	\$0.03	749,193
Electric	Miscellaneous	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	559	18	\$1,199	95%	65%	\$0.25	0.00
Electric	Miscellaneous	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	269	15	\$57	95%	90%	\$0.03	528,831

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	269	15	\$57	95%	90%	\$0.03	716,709
Electric	Miscellaneous	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	6,730	20	\$975	55%	45%	\$0.02	3,991,388
Electric	Miscellaneous	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	6,730	20	\$975	55%	45%	\$0.02	4,929,184
Electric	Miscellaneous	Ventilation And Circulation	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	Per Building	New	422	18	\$1,704	5.0%	85%	\$0.48	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	37	9	\$14	1.0%	95%	\$0.07	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$6	0.5%	95%	\$0.05	274
Electric	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$6	0.5%	95%	\$0.05	305
Electric	Miscellaneous	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	63	10	\$2,434	55%	95%	\$6.55	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	3	12	\$8	75%	35%	\$0.42	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	1.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	1.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$2	1.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$2	1.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	1.0%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	12	12	\$50	75%	75%	\$0.60	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	252	25	\$1,600	2.5%	95%	\$0.64	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	48	9	\$0.00	95%	75%	\$0.00	214,912
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	48	9	\$0.87	95%	75%	\$0.00	238,962
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	20	9	\$0.00	95%	50%	\$0.00	58,995
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	20	9	\$0.87	95%	50%	\$0.01	54,587
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$7	95%	25%	\$0.17	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$10	95%	25%	\$0.25	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	429	4	\$129	95%	95%	\$0.11	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	60	10	\$6	95%	85%	\$0.02	250,977
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	60	10	\$6	95%	85%	\$0.02	250,977
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	96	10	\$9	95%	85%	\$0.02	443,143
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	96	10	\$9	95%	85%	\$0.02	443,143
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	48	10	\$15	95%	25%	\$0.05	59,533
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	48	10	\$15	95%	25%	\$0.05	59,533
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	77	10	\$25	95%	25%	\$0.06	105,116
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	77	10	\$25	95%	25%	\$0.06	105,116
Electric	Miscellaneous	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	31	10	\$106	75%	95%	\$0.57	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	31	10	\$168	75%	95%	\$0.90	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	144	10	\$89	2.5%	95%	\$0.11	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	144	10	\$141	2.5%	95%	\$0.17	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	754	15	\$645	75%	N/A	\$0.15	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	745	15	\$386	75%	N/A	\$0.11	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	37	9	\$14	1.0%	95%	\$0.07	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$6	0.5%	95%	\$0.05	23
Electric	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$6	0.5%	95%	\$0.05	27
Electric	Miscellaneous	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	62	10	\$2,434	55%	95%	\$6.60	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	3	12	\$8	75%	35%	\$0.42	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	1.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	1.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$2	1.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$2	1.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	1.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	250	25	\$1,280	2.5%	95%	\$0.52	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	48	9	\$0.00	95%	75%	\$0.00	21,662
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	48	9	\$0.87	95%	75%	\$0.00	18,143
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	19	9	\$0.00	95%	50%	\$0.00	5,946

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	19	9	\$0.87	95%	50%	\$0.01	4,144
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	429	4	\$129	95%	95%	\$0.11	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	60	10	\$6	95%	85%	\$0.02	25,509
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	60	10	\$6	95%	85%	\$0.02	25,509
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	96	10	\$9	95%	85%	\$0.02	33,927
Electric	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	96	10	\$9	95%	85%	\$0.02	33,927
Electric	Miscellaneous	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	31	10	\$106	75%	95%	\$0.57	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	31	10	\$168	75%	95%	\$0.91	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	142	10	\$89	2.5%	95%	\$0.11	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	142	10	\$141	2.5%	95%	\$0.17	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	754	15	\$645	75%	N/A	\$0.15	0.00
Electric	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	745	15	\$386	75%	N/A	\$0.11	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	37	9	\$14	1.0%	95%	\$0.07	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$6	0.5%	95%	\$0.05	621
Electric	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$6	0.5%	95%	\$0.05	691
Electric	Miscellaneous	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	66	10	\$2,434	25%	95%	\$6.26	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	3	12	\$8	75%	35%	\$0.42	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	5.0%	95%	\$0.08	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	5.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$2	5.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$2	5.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	13	12	\$50	75%	75%	\$0.58	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	264	25	\$1,600	2.5%	95%	\$0.62	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	51	9	\$0.00	95%	75%	\$0.00	508,882
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	51	9	\$0.87	95%	75%	\$0.00	565,863
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	21	9	\$0.00	95%	50%	\$0.00	139,693
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	21	9	\$0.87	95%	50%	\$0.01	129,263
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$7	95%	25%	\$0.16	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$10	95%	25%	\$0.24	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	429	4	\$129	95%	95%	\$0.11	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	60	10	\$6	95%	85%	\$0.02	568,656
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	60	10	\$6	95%	85%	\$0.02	568,656
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	96	10	\$9	95%	85%	\$0.02	1,004,116
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	96	10	\$9	95%	85%	\$0.02	1,004,116
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	48	10	\$15	95%	25%	\$0.05	134,889
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	48	10	\$15	95%	25%	\$0.05	134,889
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	77	10	\$25	95%	25%	\$0.06	238,183
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	77	10	\$25	95%	25%	\$0.06	238,183
Electric	Miscellaneous	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	33	10	\$106	75%	95%	\$0.55	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	33	10	\$168	75%	95%	\$0.87	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	150	10	\$89	2.5%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	150	10	\$141	2.5%	95%	\$0.16	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	697	15	\$3,311	75%	N/A	\$0.69	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	40	15	\$144	100%	N/A	\$0.46	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	37	9	\$14	1.0%	95%	\$0.07	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$6	0.5%	95%	\$0.05	68
Electric	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$6	0.5%	95%	\$0.05	80
Electric	Miscellaneous	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	64	10	\$2,434	25%	95%	\$6.46	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	3	12	\$8	75%	35%	\$0.42	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	5.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	5.0%	95%	\$0.08	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$2	5.0%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$2	5.0%	95%	\$0.10	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	4	12	\$2	5.0%	95%	\$0.09	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	256	25	\$1,280	2.5%	95%	\$0.51	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	49	9	\$0.00	95%	75%	\$0.00	64,935
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	49	9	\$0.87	95%	75%	\$0.00	55,120
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	20	9	\$0.00	95%	50%	\$0.00	17,825
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	20	9	\$0.87	95%	50%	\$0.01	12,591
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	429	4	\$129	95%	95%	\$0.11	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	60	10	\$6	95%	85%	\$0.02	74,803
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	60	10	\$6	95%	85%	\$0.02	74,803
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	96	10	\$9	95%	85%	\$0.02	100,831
Electric	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	96	10	\$9	95%	85%	\$0.02	100,831
Electric	Miscellaneous	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	32	10	\$106	75%	95%	\$0.56	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	32	10	\$168	75%	95%	\$0.89	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	146	10	\$89	2.5%	95%	\$0.10	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	146	10	\$141	2.5%	95%	\$0.17	0.00
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	697	15	\$3,311	75%	N/A	\$0.69	129
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	697	15	\$3,311	75%	N/A	\$0.69	284
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	40	15	\$144	100%	N/A	\$0.46	-218.1897
Electric	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	40	15	\$144	100%	N/A	\$0.46	-24.34404
Electric	Restaurant	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	84	4	\$9	100%	N/A	\$0.04	66,700
Electric	Restaurant	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	84	4	\$9	100%	N/A	\$0.04	73,452

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	84	4	\$9	100%	N/A	\$0.04	19,597
Electric	Restaurant	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	84	4	\$9	100%	N/A	\$0.04	22,950
Electric	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	1,644	12	\$930	40%	60%	\$0.08	0.00
Electric	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	1,644	12	\$930	40%	60%	\$0.08	0.00
Electric	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	1,644	12	\$930	40%	60%	\$0.08	0.00
Electric	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	1,644	12	\$930	40%	60%	\$0.08	0.00
Electric	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	420	12	\$1,097	40%	70%	\$0.39	0.00
Electric	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	420	12	\$1,097	40%	70%	\$0.39	0.00
Electric	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	420	12	\$1,097	40%	70%	\$0.39	0.00
Electric	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	420	12	\$1,097	40%	70%	\$0.39	0.00
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	943	12	\$229	40%	45%	\$0.04	310,066
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	943	12	\$229	40%	45%	\$0.04	310,066
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	943	12	\$229	40%	45%	\$0.04	731,098
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	943	12	\$229	40%	45%	\$0.04	731,098
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	4,630	12	\$2,608	39%	75%	\$0.08	0.00
Electric	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	1,644	12	\$930	40%	60%	\$0.08	0.00
Electric	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	420	12	\$1,097	40%	70%	\$0.39	0.00
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	943	12	\$229	40%	45%	\$0.04	41,438
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	943	12	\$229	40%	45%	\$0.04	41,438
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	943	12	\$229	40%	45%	\$0.04	75,949
Electric	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	943	12	\$229	40%	45%	\$0.04	75,949
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	2,680	12	\$1,713	35%	85%	\$0.10	0.00

Table F.2. Commercial Residential Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	2,680	12	\$1,713	35%	85%	\$0.10	0.00
Electric	Restaurant	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	4,630	12	\$2,608	39%	75%	\$0.08	0.00
Electric	Restaurant	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,206	15	\$1,455	45%	95%	\$0.16	0.00
Electric	Restaurant	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,445	15	\$1,455	45%	95%	\$0.13	0.00
Electric	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	382	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	976	15	\$754	100%	N/A	\$0.10	0.00
Electric	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	1,809	10	\$4,716	10%	50%	\$0.44	0.00
Electric	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	2,167	10	\$4,716	10%	50%	\$0.37	0.00
Electric	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	301	18	\$998	45%	85%	\$0.39	0.00
Electric	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	361	18	\$998	45%	85%	\$0.33	0.00
Electric	Restaurant	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	8,086	15	\$-15809.607	35%	N/A	\$-0.33	3,933,054
Electric	Restaurant	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	8,086	15	\$-15809.607	35%	N/A	\$-0.33	5,675,929
Electric	Restaurant	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	542	12	\$5,449	65%	85%	\$1.51	0.00
Electric	Restaurant	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	650	12	\$5,449	65%	85%	\$1.26	0.00
Electric	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,206	40	\$42,133	2.0%	100%	\$3.10	0.00
Electric	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,445	40	\$42,133	2.0%	100%	\$2.59	0.00
Electric	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	603	12	\$169	10%	60%	\$0.04	163,132
Electric	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	722	12	\$169	10%	60%	\$0.04	144,319
Electric	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	19	25	\$2,190	45%	65%	\$11.40	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	23	25	\$2,190	45%	65%	\$9.52	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	4	25	\$1,053	25%	85%	\$25.60	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	5	25	\$1,053	25%	85%	\$21.37	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	361	20	\$437	45%	60%	\$0.14	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	433	20	\$478	45%	60%	\$0.12	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	217	20	\$76	45%	85%	\$0.04	376,984
Electric	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	260	20	\$83	45%	85%	\$0.04	330,219
Electric	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,508	7	\$819	90%	95%	\$0.12	0.00
Electric	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,806	7	\$819	90%	95%	\$0.10	6,168,349
Electric	Restaurant	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	1,206	5	\$1,330	95%	50%	\$0.32	0.00
Electric	Restaurant	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	1,445	5	\$1,330	95%	50%	\$0.27	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	681	10	\$1,496	35%	70%	\$0.37	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	681	10	\$1,496	35%	70%	\$0.37	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	1,123	10	\$1,496	35%	70%	\$0.23	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	1,123	10	\$1,496	35%	70%	\$0.23	0.00
Electric	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,522	25	\$15	15%	90%	\$0.00	1,206,228
Electric	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,823	25	\$15	15%	90%	\$0.00	1,059,774
Electric	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,388	25	\$237	15%	25%	\$0.02	237,322
Electric	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,663	25	\$237	15%	25%	\$0.01	208,508
Electric	Restaurant	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	369	7	\$3,077	95%	95%	\$1.85	0.00
Electric	Restaurant	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	436	7	\$3,077	95%	95%	\$1.56	0.00
Electric	Restaurant	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,126	15	\$1,455	45%	95%	\$0.17	0.00
Electric	Restaurant	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,330	15	\$1,455	45%	95%	\$0.14	0.00
Electric	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	382	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	976	15	\$604	100%	N/A	\$0.08	142,942
Electric	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	976	15	\$604	100%	N/A	\$0.08	157,901
Electric	Restaurant	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	8,086	15	-\$11525.421	35%	N/A	-\$0.24	1,411,378
Electric	Restaurant	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	8,086	15	-\$11525.421	35%	N/A	-\$0.24	2,037,763

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	507	12	\$5,449	65%	85%	\$1.61	0.00
Electric	Restaurant	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	598	12	\$5,449	65%	85%	\$1.37	0.00
Electric	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,126	40	\$42,133	2.0%	100%	\$3.32	0.00
Electric	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,330	40	\$42,133	2.0%	100%	\$2.81	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	3	25	\$1,053	75%	85%	\$27.41	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	4	25	\$1,053	75%	85%	\$23.21	0.00
Electric	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	202	20	\$76	45%	85%	\$0.04	39,869
Electric	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	239	20	\$83	45%	85%	\$0.04	29,330
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	681	10	\$1,496	0.0%	0%	\$0.37	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	681	10	\$1,496	0.0%	0%	\$0.37	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	1,123	10	\$1,496	0.0%	0%	\$0.23	0.00
Electric	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	1,123	10	\$1,496	0.0%	0%	\$0.23	0.00
Electric	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,421	25	\$15	80%	90%	\$0.00	732,438
Electric	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,678	25	\$15	80%	90%	\$0.00	538,823
Electric	Restaurant	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	2	6	\$0.00	100%	N/A	\$0.00	16,540
Electric	Restaurant	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	2	6	\$0.00	100%	N/A	\$0.00	16,640
Electric	Restaurant	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	2	6	\$0.00	100%	N/A	\$0.00	2,482
Electric	Restaurant	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	2	6	\$0.00	100%	N/A	\$0.00	2,943
Electric	Restaurant	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	11	4	\$12	100%	N/A	\$0.40	0.00
Electric	Restaurant	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	11	4	\$12	100%	N/A	\$0.40	2
Electric	Restaurant	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	11	4	\$12	100%	N/A	\$0.40	3
Electric	Restaurant	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	7	20	\$0.83	100%	N/A	\$0.01	0.00
Electric	Restaurant	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	20	20	\$0.41	100%	N/A	\$0.00	47,592
Electric	Restaurant	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	20	20	\$0.41	100%	N/A	\$0.00	-877.08624
Electric	Restaurant	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	137	20	\$19	8.8%	100%	\$0.02	103,621
Electric	Restaurant	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	137	20	\$19	8.8%	100%	\$0.02	103,621
Electric	Restaurant	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	162	20	\$19	8.8%	100%	\$0.01	114,393
Electric	Restaurant	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	162	20	\$19	8.8%	100%	\$0.01	114,393
Electric	Restaurant	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	7	20	\$0.83	100%	N/A	\$0.01	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	20	20	\$0.41	100%	N/A	\$0.00	16,514
Electric	Restaurant	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	20	20	\$0.41	100%	N/A	\$0.00	-113.885256
Electric	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	701	15	\$2,810	100%	N/A	\$0.52	0.00
Electric	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	1,480	15	\$5,620	100%	N/A	\$0.50	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,067	15	\$1,455	45%	95%	\$0.18	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,067	15	\$1,455	45%	95%	\$0.18	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,239	15	\$1,455	45%	95%	\$0.15	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,239	15	\$1,455	45%	95%	\$0.15	0.00
Electric	Restaurant	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	451	18	\$998	45%	85%	\$0.26	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	848	14	\$7,153	5.0%	95%	\$1.15	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	848	14	\$7,153	5.0%	95%	\$1.15	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,107	14	\$7,153	5.0%	95%	\$0.88	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,107	14	\$7,153	5.0%	95%	\$0.88	0.00
Electric	Restaurant	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	812	12	\$5,449	65%	85%	\$1.01	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,067	40	\$42,133	2.0%	100%	\$3.50	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,067	40	\$42,133	2.0%	100%	\$3.50	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,239	40	\$42,133	2.0%	100%	\$3.02	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,239	40	\$42,133	2.0%	100%	\$3.02	0.00
Electric	Restaurant	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	5,103	30	\$66,611	5.0%	N/A	\$3.05	0.00
Electric	Restaurant	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,353	12	\$169	10%	60%	\$0.02	26,962
Electric	Restaurant	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,353	12	\$169	10%	60%	\$0.02	68,439
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	674	25	\$2,190	45%	65%	\$0.33	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	674	25	\$2,190	45%	65%	\$0.33	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	871	25	\$2,190	45%	65%	\$0.26	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	871	25	\$2,190	45%	65%	\$0.26	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	144	25	\$1,053	25%	85%	\$0.74	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	144	25	\$1,053	25%	85%	\$0.74	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	186	25	\$1,053	25%	85%	\$0.58	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	186	25	\$1,053	25%	85%	\$0.58	0.00
Electric	Restaurant	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	541	20	\$437	45%	60%	\$0.09	42,852
Electric	Restaurant	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	541	20	\$478	45%	60%	\$0.10	0.00
Electric	Restaurant	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	324	20	\$76	45%	85%	\$0.03	41,066
Electric	Restaurant	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	324	20	\$83	45%	85%	\$0.03	103,975
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,153	25	\$3,909	15%	85%	\$0.35	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,153	25	\$3,909	15%	85%	\$0.35	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,729	25	\$3,909	15%	85%	\$0.23	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,729	25	\$3,909	15%	85%	\$0.23	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	227	25	\$1,206	15%	95%	\$0.54	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	227	25	\$1,206	15%	95%	\$0.54	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	338	25	\$1,206	15%	95%	\$0.36	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	338	25	\$1,206	15%	95%	\$0.36	0.00
Electric	Restaurant	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,879	25	\$9,611	10%	45%	\$0.34	0.00
Electric	Restaurant	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,256	7	\$819	90%	95%	\$0.08	767,101
Electric	Restaurant	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,256	7	\$819	90%	95%	\$0.08	1,942,206
Electric	Restaurant	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	1,805	3	\$1,330	95%	50%	\$0.34	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	403	10	\$1,496	35%	70%	\$0.63	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	403	10	\$1,496	35%	70%	\$0.63	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	771	10	\$1,496	35%	70%	\$0.33	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	771	10	\$1,496	35%	70%	\$0.33	0.00
Electric	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,120	25	\$15	15%	90%	\$0.00	64,282
Electric	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,120	25	\$15	15%	90%	\$0.00	162,756
Electric	Restaurant	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,232	25	\$237	15%	25%	\$0.02	15,375
Electric	Restaurant	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,232	25	\$237	15%	25%	\$0.02	38,753
Electric	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	701	15	\$2,248	100%	N/A	\$0.42	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,480	15	\$4,496	100%	N/A	\$0.40	41
Electric	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,480	15	\$4,496	100%	N/A	\$0.40	58
Electric	Restaurant	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	546	7	\$3,077	95%	95%	\$1.25	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	985	15	\$1,455	45%	95%	\$0.19	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	985	15	\$1,455	45%	95%	\$0.19	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,144	15	\$1,455	45%	95%	\$0.17	0.00
Electric	Restaurant	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,144	15	\$1,455	45%	95%	\$0.17	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	783	14	\$7,153	5.0%	95%	\$1.24	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	783	14	\$7,153	5.0%	95%	\$1.24	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,022	14	\$7,153	5.0%	95%	\$0.95	0.00
Electric	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,022	14	\$7,153	5.0%	95%	\$0.95	0.00
Electric	Restaurant	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	750	12	\$5,449	65%	85%	\$1.09	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	985	40	\$42,133	2.0%	100%	\$3.80	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	985	40	\$42,133	2.0%	100%	\$3.80	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,144	40	\$42,133	2.0%	100%	\$3.27	0.00
Electric	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,144	40	\$42,133	2.0%	100%	\$3.27	0.00
Electric	Restaurant	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	5,103	30	\$85,585	5.0%	N/A	\$1.55	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	133	25	\$1,053	75%	85%	\$0.80	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	133	25	\$1,053	75%	85%	\$0.80	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	172	25	\$1,053	75%	85%	\$0.62	0.00
Electric	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	172	25	\$1,053	75%	85%	\$0.62	0.00
Electric	Restaurant	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	300	20	\$76	45%	85%	\$0.03	4,456
Electric	Restaurant	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	300	20	\$83	45%	85%	\$0.03	9,639
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	210	25	\$1,206	15%	95%	\$0.58	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	210	25	\$1,206	15%	95%	\$0.58	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	312	25	\$1,206	15%	95%	\$0.39	0.00
Electric	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	312	25	\$1,206	15%	95%	\$0.39	0.00
Electric	Restaurant	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	245	25	\$1,004	95%	85%	\$0.42	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	New	403	10	\$1,496	0.0%	0%	\$0.63	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	New	403	10	\$1,496	0.0%	0%	\$0.63	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	New	771	10	\$1,496	0.0%	0%	\$0.33	0.00
Electric	Restaurant	Heat Pump	Window Film	Window Film	No Film	Per Building	New	771	10	\$1,496	0.0%	0%	\$0.33	0.00
Electric	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,035	25	\$15	80%	90%	\$0.00	38,351
Electric	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,035	25	\$15	80%	90%	\$0.00	82,942
Electric	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	2,127	8	\$438	75%	70%	\$0.04	0.00
Electric	Restaurant	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,766	15	\$1,445	62%	90%	\$0.11	0.00
Electric	Restaurant	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,766	15	\$1,578	62%	90%	\$0.12	0.00
Electric	Restaurant	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	893	8	\$460	45%	90%	\$0.10	0.00
Electric	Restaurant	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	893	8	\$503	45%	90%	\$0.11	0.00
Electric	Restaurant	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	757	17	\$514	75%	50%	\$0.08	0.00
Electric	Restaurant	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	736	8	\$49	25%	25%	\$0.01	396,162
Electric	Restaurant	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	736	8	\$54	25%	25%	\$0.01	413,858
Electric	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	2,127	8	\$438	75%	70%	\$0.04	0.00
Electric	Restaurant	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,766	15	\$1,445	62%	90%	\$0.11	0.00
Electric	Restaurant	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,766	15	\$1,578	62%	90%	\$0.12	0.00
Electric	Restaurant	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	893	8	\$460	45%	90%	\$0.10	0.00
Electric	Restaurant	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	893	8	\$503	45%	90%	\$0.11	0.00
Electric	Restaurant	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	757	17	\$514	75%	50%	\$0.08	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	415	10	\$209	0.5%	75%	\$0.09	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	415	10	\$228	0.5%	75%	\$0.09	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,959	8	\$4,159	5.0%	95%	\$0.21	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,959	8	\$4,159	5.0%	95%	\$0.21	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,138	8	\$4,159	5.0%	95%	\$0.20	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,138	8	\$4,159	5.0%	95%	\$0.20	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,969	8	\$3,119	5.0%	95%	\$0.21	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,969	8	\$3,119	5.0%	95%	\$0.21	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,103	8	\$3,119	5.0%	95%	\$0.20	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,103	8	\$3,119	5.0%	95%	\$0.20	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	1,866	6	\$692	25%	80%	\$0.06	2,985,173
Electric	Restaurant	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	1,866	6	\$692	25%	80%	\$0.06	3,123,946
Electric	Restaurant	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	Existing	1,145	6	\$581	25%	80%	\$0.11	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,945	13	\$12,560	50%	N/A	\$0.62	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,945	13	\$12,560	50%	N/A	\$0.62	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,950	13	\$12,583	50%	N/A	\$0.62	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,950	13	\$12,583	50%	N/A	\$0.62	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	659	13	\$202	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	659	13	\$202	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	660	13	\$203	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	660	13	\$203	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,212	13	\$680	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,212	13	\$680	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,214	13	\$682	100%	N/A	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,214	13	\$682	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,371	13	\$1,790	100%	N/A	\$0.22	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,373	13	\$1,793	100%	N/A	\$0.22	0.00
Electric	Restaurant	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,889	8	\$460	5.0%	90%	\$0.05	679,223
Electric	Restaurant	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,889	8	\$503	5.0%	90%	\$0.05	710,799
Electric	Restaurant	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	1,557	8	\$49	5.0%	25%	\$0.01	187,037
Electric	Restaurant	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	1,557	8	\$54	5.0%	25%	\$0.01	195,732
Electric	Restaurant	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	276	15	\$106	100%	N/A	\$0.07	0.00
Electric	Restaurant	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	361	15	\$460	95%	N/A	\$0.16	0.00
Electric	Restaurant	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	305	16	\$3,434	50%	N/A	\$1.37	0.00
Electric	Restaurant	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	186	10	\$-2,9113	25%	N/A	\$-0.03	42,272
Electric	Restaurant	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	186	10	\$-2,9113	25%	N/A	\$-0.03	42,595
Electric	Restaurant	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	83	15	\$2,170	100%	N/A	\$3.24	0.00
Electric	Restaurant	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	137	8	\$460	5.0%	90%	\$0.67	0.00
Electric	Restaurant	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	137	8	\$503	5.0%	90%	\$0.73	0.00
Electric	Restaurant	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	113	8	\$49	10%	25%	\$0.09	0.00
Electric	Restaurant	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	113	8	\$54	10%	25%	\$0.10	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	441	11	\$171	95%	65%	\$0.06	2,345,488
Electric	Restaurant	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	441	11	\$171	95%	65%	\$0.06	2,345,488
Electric	Restaurant	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	481	11	\$187	95%	65%	\$0.06	2,675,819

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	481	11	\$187	95%	65%	\$0.06	2,675,819
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	88	13	\$75	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	88	13	\$75	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	96	13	\$82	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	96	13	\$82	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	640	10	\$209	0.5%	75%	\$0.06	2,745
Electric	Restaurant	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	640	10	\$228	0.5%	75%	\$0.06	2,232
Electric	Restaurant	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,134	8	\$4,159	5.0%	95%	\$0.27	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,134	8	\$4,159	5.0%	95%	\$0.27	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,275	8	\$4,159	5.0%	95%	\$0.25	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,275	8	\$4,159	5.0%	95%	\$0.25	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,351	8	\$3,119	5.0%	95%	\$0.27	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,351	8	\$3,119	5.0%	95%	\$0.27	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,456	8	\$3,119	5.0%	95%	\$0.25	0.00
Electric	Restaurant	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,456	8	\$3,119	5.0%	95%	\$0.25	0.00
Electric	Restaurant	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	1,154	6	\$281	25%	80%	\$0.02	216,974
Electric	Restaurant	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	1,154	6	\$281	25%	80%	\$0.02	266,835
Electric	Restaurant	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	520	6	\$202	25%	80%	\$0.08	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	88	13	\$75	95%	95%	\$0.12	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	88	13	\$75	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	96	13	\$82	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	96	13	\$82	95%	95%	\$0.12	0.00
Electric	Restaurant	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,563	13	\$9,361	100%	N/A	\$0.52	0.00
Electric	Restaurant	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,563	13	\$9,361	100%	N/A	\$0.52	0.00
Electric	Restaurant	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	4,165	13	\$6,974	100%	N/A	\$0.24	0.00
Electric	Restaurant	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	4,165	13	\$6,974	100%	N/A	\$0.24	0.00
Electric	Restaurant	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,916	8	\$460	5.0%	90%	\$0.03	150,530
Electric	Restaurant	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,916	8	\$503	5.0%	90%	\$0.03	122,402
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	36,845	4	\$210	85%	N/A	\$-0.02	0.00
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	44,660	4	\$254	85%	N/A	\$-0.02	0.00
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	30,803	1	\$64	100%	N/A	\$0.01	0.00
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	37,336	1	\$78	100%	N/A	\$0.01	0.00
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	37,125	12	\$5,353	85%	N/A	\$0.00	11,571,619
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	37,125	12	\$5,353	85%	N/A	\$0.00	11,571,619
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	44,999	12	\$6,489	85%	N/A	\$0.00	13,981,908
Electric	Restaurant	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	44,999	12	\$6,489	85%	N/A	\$0.00	13,981,908
Electric	Restaurant	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,312	8	\$460	5.0%	90%	\$0.04	492,038
Electric	Restaurant	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,312	8	\$503	5.0%	90%	\$0.04	424,039
Electric	Restaurant	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	1,906	8	\$49	1.0%	25%	\$0.01	27,078

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	1,906	8	\$54	1.0%	25%	\$0.01	23,336
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	3	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	71	10	\$0.41	95%	75%	\$0.00	510,907
Electric	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	71	10	\$0.41	95%	75%	\$0.00	546,366
Electric	Restaurant	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	704	10	\$498	75%	85%	\$0.12	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	50	4	\$9	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	50	4	\$9	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	55	4	\$10	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	55	4	\$10	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	1	7	\$0.83	10%	90%	\$0.10	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	3	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	71	10	\$0.41	95%	75%	\$0.00	57,005
Electric	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	71	10	\$0.41	95%	75%	\$0.00	68,487
Electric	Restaurant	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	New	704	10	\$498	75%	85%	\$0.12	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	50	4	\$9	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	50	4	\$9	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	55	4	\$10	60%	90%	\$0.07	0.00
Electric	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	55	4	\$10	60%	90%	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	6	6	\$7	100%	N/A	\$0.32	0.00
Electric	Restaurant	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	6	6	\$7	100%	N/A	\$0.32	1
Electric	Restaurant	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	6	6	\$7	100%	N/A	\$0.32	2
Electric	Restaurant	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	31	6	\$4	100%	N/A	\$0.04	2,004
Electric	Restaurant	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	31	6	\$4	100%	N/A	\$0.04	3,652
Electric	Restaurant	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	31	6	\$4	100%	N/A	\$0.04	0.00
Electric	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	1,636	8	\$140	25%	75%	\$0.02	2,601,117
Electric	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	1,636	8	\$140	25%	75%	\$0.02	2,749,312
Electric	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	3,631	15	\$882	10%	50%	\$0.03	1,547,898
Electric	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	3,631	15	\$882	10%	50%	\$0.03	1,636,087
Electric	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	2,509	15	\$271	10%	90%	\$0.01	1,925,103
Electric	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	2,509	15	\$271	10%	90%	\$0.01	2,034,783
Electric	Restaurant	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	139	15	\$91	10%	90%	\$0.09	0.00
Electric	Restaurant	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	Existing	2,456	10	\$2,037	10%	80%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	Existing	3,334	10	\$2,761	10%	80%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	Existing	781	10	\$3,300	5.0%	70%	\$0.72	0.00
Electric	Restaurant	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	361	8	\$35	1.0%	95%	\$0.02	29,253
Electric	Restaurant	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	361	8	\$35	1.0%	95%	\$0.02	30,920
Electric	Restaurant	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	155	15	\$140	35%	80%	\$0.12	0.00
Electric	Restaurant	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	192	12	\$182	95%	80%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	675	5	\$107	30%	90%	\$0.05	1,532,370
Electric	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	675	5	\$107	30%	90%	\$0.05	1,619,674
Electric	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	Existing	3,043	3	\$477	10%	90%	\$0.07	0.00
Electric	Restaurant	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	151	12	\$-35.3515	95%	80%	\$-0.04	979,519
Electric	Restaurant	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	151	12	\$-35.3515	95%	80%	\$-0.04	1,035,326
Electric	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-Ins	Per Building	Existing	274	4	\$198	5.0%	80%	\$0.25	0.00
Electric	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	274	15	\$304	35%	95%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	1,636	8	\$140	25%	20%	\$0.02	76,797

Table F.2. Commercial Refrigeration Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	1,636	8	\$140	25%	20%	\$0.02	93,337
Electric	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	2,902	15	\$705	10%	50%	\$0.03	133,029
Electric	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	2,902	15	\$705	10%	50%	\$0.03	162,402
Electric	Restaurant	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	New	1,963	10	\$1,628	10%	80%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	New	2,665	10	\$2,207	10%	80%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	New	624	10	\$3,300	5.0%	70%	\$0.90	0.00
Electric	Restaurant	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	288	8	\$28	1.0%	95%	\$0.02	2,580
Electric	Restaurant	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	288	8	\$28	1.0%	95%	\$0.02	3,135
Electric	Restaurant	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	155	15	\$140	35%	80%	\$0.12	0.00
Electric	Restaurant	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	192	12	\$182	95%	80%	\$0.14	0.00
Electric	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	675	5	\$107	30%	90%	\$0.05	170,244
Electric	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	675	5	\$107	30%	90%	\$0.05	206,910
Electric	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	New	1,216	3	\$147	5.0%	90%	\$0.06	0.00
Electric	Restaurant	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	151	12	\$-35.3515	95%	80%	\$-0.04	108,094
Electric	Restaurant	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	151	12	\$-35.3515	95%	80%	\$-0.04	131,375
Electric	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	274	4	\$198	5.0%	80%	\$0.25	0.00
Electric	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	274	15	\$304	35%	95%	\$0.14	0.00
Electric	Restaurant	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	246	20	\$670	100%	N/A	\$0.31	0.00
Electric	Restaurant	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	276	20	\$898	100%	N/A	\$0.37	0.00
Electric	Restaurant	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	216	20	\$52	100%	N/A	\$0.03	186,402
Electric	Restaurant	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	216	20	\$52	100%	N/A	\$0.03	203,695
Electric	Restaurant	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	68	20	\$24	100%	N/A	\$0.04	0.00
Electric	Restaurant	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,688	20	\$178	8.8%	100%	\$0.01	979,840
Electric	Restaurant	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,688	20	\$178	8.8%	100%	\$0.01	979,840
Electric	Restaurant	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,723	20	\$172	8.8%	100%	\$0.01	1,069,213
Electric	Restaurant	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,723	20	\$172	8.8%	100%	\$0.01	1,069,213
Electric	Restaurant	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	246	20	\$670	100%	N/A	\$0.31	0.00
Electric	Restaurant	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	276	20	\$898	100%	N/A	\$0.37	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	216	20	\$52	100%	N/A	\$0.03	87,170
Electric	Restaurant	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	216	20	\$52	100%	N/A	\$0.03	87,831
Electric	Restaurant	Refrigerators	Refrigerator - Federal Standard 2015	Refrigerator - Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	68	20	\$24	100%	N/A	\$0.04	0.00
Electric	Restaurant	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	152	15	\$1,455	45%	95%	\$1.25	0.00
Electric	Restaurant	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	194	15	\$1,455	45%	95%	\$0.98	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	279	15	\$19,574	2.5%	65%	\$9.15	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	356	15	\$19,574	2.5%	65%	\$7.18	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	279	15	\$16,167	2.5%	65%	\$7.55	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	356	15	\$16,167	2.5%	65%	\$5.93	0.00
Electric	Restaurant	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	68	12	\$5,449	65%	85%	\$11.91	0.00
Electric	Restaurant	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	87	12	\$5,449	65%	85%	\$9.35	0.00
Electric	Restaurant	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	152	40	\$42,133	2.0%	100%	\$24.50	0.00
Electric	Restaurant	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	194	40	\$42,133	2.0%	100%	\$19.24	0.00
Electric	Restaurant	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	76	12	\$169	10%	60%	\$0.33	0.00
Electric	Restaurant	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	97	12	\$169	10%	60%	\$0.26	0.00
Electric	Restaurant	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2	25	\$2,190	45%	65%	\$90.11	0.00
Electric	Restaurant	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$2,190	45%	65%	\$70.78	0.00
Electric	Restaurant	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.53	25	\$1,053	25%	85%	\$202.35	0.00
Electric	Restaurant	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.67	25	\$1,053	25%	85%	\$158.93	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	142	9	\$49	100%	N/A	\$0.06	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	142	9	\$49	100%	N/A	\$0.06	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	181	9	\$49	100%	N/A	\$0.05	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	181	9	\$49	100%	N/A	\$0.05	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	192	25	\$15	15%	90%	\$0.01	0.00
Electric	Restaurant	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	245	25	\$15	15%	90%	\$0.01	0.00
Electric	Restaurant	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	175	25	\$237	15%	25%	\$0.14	0.00
Electric	Restaurant	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	223	25	\$237	15%	25%	\$0.11	0.00
Electric	Restaurant	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	152	15	\$1,455	45%	95%	\$1.25	0.00
Electric	Restaurant	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	194	15	\$1,455	45%	95%	\$0.98	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	279	15	\$15,659	2.5%	65%	\$7.32	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	356	15	\$15,659	2.5%	65%	\$5.75	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	279	15	\$12,934	2.5%	65%	\$6.04	0.00
Electric	Restaurant	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	356	15	\$12,934	2.5%	65%	\$4.75	0.00
Electric	Restaurant	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	68	12	\$5,449	65%	85%	\$11.91	0.00
Electric	Restaurant	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	87	12	\$5,449	65%	85%	\$9.35	0.00
Electric	Restaurant	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	152	40	\$42,133	2.0%	100%	\$24.50	0.00
Electric	Restaurant	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	194	40	\$42,133	2.0%	100%	\$19.24	0.00
Electric	Restaurant	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.53	25	\$1,053	75%	85%	\$202.35	0.00
Electric	Restaurant	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.67	25	\$1,053	75%	85%	\$158.93	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	142	9	\$49	100%	N/A	\$0.06	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	142	9	\$49	100%	N/A	\$0.06	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	181	9	\$49	100%	N/A	\$0.05	0.00
Electric	Restaurant	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	181	9	\$49	100%	N/A	\$0.05	0.00
Electric	Restaurant	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	192	25	\$15	80%	90%	\$0.01	0.00
Electric	Restaurant	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	245	25	\$15	80%	90%	\$0.01	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	2,505	15	\$16,174	2.5%	65%	\$0.84	0.00
Electric	Restaurant	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	181	12	\$5,449	65%	85%	\$4.51	0.00
Electric	Restaurant	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	403	12	\$169	10%	60%	\$0.06	0.00
Electric	Restaurant	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	469	25	\$2,190	45%	65%	\$0.48	0.00
Electric	Restaurant	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	100	25	\$1,053	25%	85%	\$1.07	0.00
Electric	Restaurant	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	970	25	\$3,909	15%	85%	\$0.41	0.00
Electric	Restaurant	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	180	25	\$1,206	15%	95%	\$0.68	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	489	25	\$9,611	10%	45%	\$2.00	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	489	25	\$9,611	10%	45%	\$2.00	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,283	25	\$9,611	10%	45%	\$0.76	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,283	25	\$9,611	10%	45%	\$0.76	0.00
Electric	Restaurant	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	2,505	15	\$11,091	2.5%	65%	\$0.58	0.00
Electric	Restaurant	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	181	12	\$5,449	65%	85%	\$4.51	0.00
Electric	Restaurant	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	100	25	\$1,053	75%	85%	\$1.07	0.00
Electric	Restaurant	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	180	25	\$1,206	15%	95%	\$0.68	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	489	25	\$1,004	95%	85%	\$0.21	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	489	25	\$1,004	95%	85%	\$0.21	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,283	25	\$1,004	95%	85%	\$0.08	0.00
Electric	Restaurant	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,283	25	\$1,004	95%	85%	\$0.08	0.00
Electric	Restaurant	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	11	9	\$1	100%	N/A	\$0.02	57,263
Electric	Restaurant	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	11	9	\$1	100%	N/A	\$0.02	57,274
Electric	Restaurant	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	11	9	\$1	100%	N/A	\$0.02	7,338
Electric	Restaurant	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	11	9	\$1	100%	N/A	\$0.02	8,679
Electric	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	148	18	\$998	45%	85%	\$0.79	0.00
Electric	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	892	14	\$7,153	5.0%	95%	\$1.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	267	12	\$5,449	65%	85%	\$3.06	0.00
Electric	Restaurant	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	594	12	\$169	10%	60%	\$0.04	0.00
Electric	Restaurant	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	692	25	\$2,190	45%	65%	\$0.32	0.00
Electric	Restaurant	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	148	25	\$1,053	25%	85%	\$0.72	0.00
Electric	Restaurant	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	178	20	\$437	45%	60%	\$0.28	0.00
Electric	Restaurant	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	178	20	\$478	45%	60%	\$0.30	0.00
Electric	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	107	20	\$76	45%	85%	\$0.08	0.00
Electric	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	107	20	\$83	45%	85%	\$0.09	0.00
Electric	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,430	25	\$3,909	15%	85%	\$0.28	0.00
Electric	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	266	25	\$1,206	15%	95%	\$0.46	0.00
Electric	Restaurant	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,891	25	\$9,611	10%	45%	\$0.52	0.00
Electric	Restaurant	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	743	7	\$819	90%	95%	\$0.24	0.00
Electric	Restaurant	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	195	7	\$3,077	95%	95%	\$3.50	0.00
Electric	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	892	14	\$7,153	5.0%	95%	\$1.09	0.00
Electric	Restaurant	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	267	12	\$5,449	65%	85%	\$3.06	0.00
Electric	Restaurant	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	148	25	\$1,053	75%	85%	\$0.72	0.00
Electric	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	107	20	\$76	45%	85%	\$0.08	0.00
Electric	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	107	20	\$83	45%	85%	\$0.09	0.00
Electric	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	266	25	\$1,206	15%	95%	\$0.46	0.00
Electric	Restaurant	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	720	25	\$1,004	95%	85%	\$0.14	0.00
Electric	Restaurant	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	77	10	\$11	100%	N/A	\$0.03	209,886
Electric	Restaurant	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	77	10	\$11	100%	N/A	\$0.03	220,540
Electric	Restaurant	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	77	10	\$11	100%	N/A	\$0.03	38,298

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	77	10	\$11	100%	N/A	\$0.03	45,194
Electric	Restaurant	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	1,865	18	\$6,250	95%	25%	\$0.40	0.00
Electric	Restaurant	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	112	15	\$27	95%	90%	\$0.03	524,033
Electric	Restaurant	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	112	15	\$27	95%	90%	\$0.03	537,053
Electric	Restaurant	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	2,803	20	\$463	55%	65%	\$0.02	6,027,301
Electric	Restaurant	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	2,803	20	\$463	55%	65%	\$0.02	6,177,050
Electric	Restaurant	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	73	7	\$20	65%	25%	\$0.06	0.00
Electric	Restaurant	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	1,865	18	\$6,250	95%	25%	\$0.40	0.00
Electric	Restaurant	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	112	15	\$27	95%	90%	\$0.03	54,918
Electric	Restaurant	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	112	15	\$27	95%	90%	\$0.03	72,629
Electric	Restaurant	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	2,803	20	\$463	55%	45%	\$0.02	414,499
Electric	Restaurant	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	2,803	20	\$463	55%	45%	\$0.02	499,507
Electric	Restaurant	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	554	10	\$1,155	75%	95%	\$0.35	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	26	12	\$73	20%	35%	\$0.42	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,908	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,908	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,909	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,909	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	75%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	110	12	\$70	75%	75%	\$0.10	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	2,218	25	\$2,200	2.5%	95%	\$0.10	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	428	9	\$0.41	95%	75%	\$0.00	385,873
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	428	9	\$0.83	95%	75%	\$0.00	405,001
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	176	9	\$0.00	95%	50%	\$0.00	105,926
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	176	9	\$0.41	95%	50%	\$0.00	111,176
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	66	9	\$16	95%	25%	\$0.05	16,622
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	66	9	\$18	95%	25%	\$0.05	17,446
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	408	4	\$123	95%	75%	\$0.11	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	277	10	\$247	75%	75%	\$0.15	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	277	10	\$269	75%	75%	\$0.17	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,264	10	\$922	45%	95%	\$0.12	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,264	10	\$1,006	45%	95%	\$0.14	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	6,622	15	\$886	75%	N/A	\$0.02	42,247
Electric	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	6,622	15	\$886	75%	N/A	\$0.02	42,752
Electric	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	6,544	15	\$530	75%	N/A	\$0.02	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	550	10	\$1,155	75%	95%	\$0.36	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	26	12	\$73	20%	35%	\$0.42	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,568	12	\$1,593	75%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	2,200	25	\$1,760	2.5%	95%	\$0.08	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	425	9	\$0.41	95%	75%	\$0.00	38,833
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	425	9	\$0.83	95%	75%	\$0.00	31,126
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	175	9	\$0.00	95%	50%	\$0.00	10,660
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	175	9	\$0.41	95%	50%	\$0.00	8,544
Electric	Restaurant	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	408	4	\$123	95%	75%	\$0.11	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	275	10	\$247	75%	75%	\$0.15	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	275	10	\$269	75%	75%	\$0.17	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,254	10	\$922	45%	95%	\$0.12	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,254	10	\$1,006	45%	95%	\$0.14	0.00
Electric	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	6,622	15	\$886	75%	N/A	\$0.02	6,352
Electric	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	6,622	15	\$886	75%	N/A	\$0.02	7,842
Electric	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	6,544	15	\$530	75%	N/A	\$0.02	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	579	10	\$1,155	75%	95%	\$0.34	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	26	12	\$73	75%	35%	\$0.42	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,908	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,908	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,909	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,909	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	2,667	12	\$1,654	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	115	12	\$70	75%	75%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	2,318	25	\$2,200	2.5%	95%	\$0.10	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	447	9	\$0.41	95%	75%	\$0.00	601,408
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	447	9	\$0.83	95%	75%	\$0.00	631,215
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	184	9	\$0.00	95%	50%	\$0.00	165,092
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	184	9	\$0.41	95%	50%	\$0.00	173,274
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	69	9	\$16	95%	25%	\$0.04	25,906
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	69	9	\$18	95%	25%	\$0.05	27,190
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	408	4	\$123	95%	75%	\$0.11	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	289	10	\$247	75%	75%	\$0.14	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	289	10	\$269	75%	75%	\$0.16	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,321	10	\$922	25%	95%	\$0.12	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,321	10	\$1,006	25%	95%	\$0.13	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	6,124	15	\$4,552	75%	N/A	\$0.11	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	358	15	\$198	100%	N/A	\$0.07	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	562	10	\$1,155	75%	95%	\$0.35	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	26	12	\$73	75%	35%	\$0.42	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,801	12	\$1,593	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	2,568	12	\$1,593	85%	95%	\$0.09	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	2,248	25	\$1,760	2.5%	95%	\$0.08	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	434	9	\$0.41	95%	75%	\$0.00	76,742
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	434	9	\$0.83	95%	75%	\$0.00	61,486
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	178	9	\$0.00	95%	50%	\$0.00	21,066
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	178	9	\$0.41	95%	50%	\$0.00	16,878
Electric	Restaurant	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	408	4	\$123	95%	75%	\$0.11	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	281	10	\$247	75%	75%	\$0.15	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	281	10	\$269	75%	75%	\$0.16	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,281	10	\$922	25%	95%	\$0.12	0.00

Table F.2. Commercial † tric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Restaurant	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,281	10	\$1,006	25%	95%	\$0.13	0.00
Electric	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	6,124	15	\$4,552	75%	N/A	\$0.11	155
Electric	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	6,124	15	\$4,552	75%	N/A	\$0.11	352
Electric	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	358	15	\$198	100%	N/A	\$0.07	-29.17518
Electric	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	358	15	\$198	100%	N/A	\$0.07	-269.913996
Electric	School	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	3,547	4	\$405	100%	N/A	\$0.04	0.00
Electric	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	5,473	4	\$405	95%	65%	\$0.03	15,958,845
Electric	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	5,473	4	\$405	95%	65%	\$0.03	18,741,287
Electric	School	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	3,547	4	\$405	100%	N/A	\$0.04	0.00
Electric	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	5,473	4	\$405	95%	65%	\$0.03	2,037,170
Electric	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	5,473	4	\$405	95%	65%	\$0.03	2,228,769
Electric	School	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	56	12	\$33	26%	60%	\$0.09	0.00
Electric	School	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	9	12	\$25	26%	70%	\$0.41	0.00
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	32	12	\$7	26%	40%	\$0.04	3,305
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	32	12	\$7	26%	40%	\$0.04	3,305
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	32	12	\$7	26%	40%	\$0.04	14,197
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	32	12	\$7	26%	40%	\$0.04	14,197
Electric	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	92	12	\$59	75%	85%	\$0.10	0.00
Electric	School	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	159	12	\$87	14%	75%	\$0.08	0.00
Electric	School	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	56	12	\$33	26%	60%	\$0.09	0.00
Electric	School	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	9	12	\$25	26%	70%	\$0.41	0.00
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	32	12	\$7	26%	40%	\$0.04	441
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	32	12	\$7	26%	40%	\$0.04	441
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	32	12	\$7	26%	40%	\$0.04	1,474
Electric	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	32	12	\$7	26%	40%	\$0.04	1,474
Electric	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	92	12	\$59	75%	85%	\$0.10	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	159	12	\$87	14%	75%	\$0.08	0.00
Electric	School	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	848	15	\$1,292	25%	95%	\$0.20	0.00
Electric	School	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	848	15	\$1,292	25%	95%	\$0.20	52,135
Electric	School	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	1,976	10	\$27,110	25%	95%	\$2.33	0.00
Electric	School	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	1,306	10	\$17,615	75%	95%	\$2.29	0.00
Electric	School	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	1,306	15	\$62,946	45%	90%	\$6.30	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	580	15	\$1,339	90%	90%	\$0.30	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	580	15	\$1,339	90%	90%	\$0.30	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	888	15	\$2,050	90%	90%	\$0.30	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	888	15	\$2,050	90%	90%	\$0.30	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	347	15	\$625	75%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	347	15	\$625	75%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	532	15	\$956	75%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	532	15	\$956	75%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.52 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	5,249	20	\$11,172	100%	N/A	\$0.24	0.00
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	High Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	1,640	20	\$1,861	100%	N/A	\$0.13	0.00
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	High Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	1,640	20	\$1,861	100%	N/A	\$0.13	10,067
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	Premium Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	3,281	20	\$6,828	100%	N/A	\$0.23	0.00
Electric	School	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	7,841	15	\$78,602	15%	70%	\$1.31	0.00
Electric	School	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	2,613	15	\$6,880	65%	95%	\$0.34	0.00
Electric	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	2,091	7	\$3,353	10%	95%	\$0.36	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	3,659	15	\$299	65%	35%	\$0.01	334,250
Electric	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	3,659	15	\$299	65%	35%	\$0.01	513,009
Electric	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	1,045	13	\$2,427	75%	75%	\$0.33	0.00
Electric	School	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	3,920	5	\$1,616	75%	75%	\$0.12	694,548
Electric	School	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	3,920	5	\$1,616	75%	75%	\$0.12	1,065,996
Electric	School	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,176	12	\$5,450	25%	85%	\$0.70	0.00
Electric	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,613	40	\$99,117	2.0%	100%	\$6.76	0.00
Electric	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,306	12	\$682	10%	60%	\$0.08	20,450
Electric	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,306	12	\$682	10%	60%	\$0.08	31,386
Electric	School	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	100	25	\$10,350	45%	65%	\$10.44	0.00
Electric	School	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	9	25	\$4,982	25%	85%	\$55.89	0.00
Electric	School	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	3,267	7	\$5,096	90%	95%	\$0.35	0.00
Electric	School	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	2,613	3	\$2	95%	20%	\$0.00	206,780
Electric	School	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	2,613	3	\$2	95%	20%	\$0.00	317,366
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	2,723	10	\$6,011	35%	70%	\$0.38	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	2,723	10	\$6,011	35%	70%	\$0.38	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	4,975	10	\$6,011	35%	70%	\$0.21	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	4,975	10	\$6,011	35%	70%	\$0.21	0.00
Electric	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	3,297	25	\$62	15%	90%	\$0.00	155,110
Electric	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	3,297	25	\$62	15%	90%	\$0.00	238,063
Electric	School	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,008	25	\$954	15%	25%	\$0.03	29,545
Electric	School	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,008	25	\$954	15%	25%	\$0.03	45,346
Electric	School	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	1,677	10	\$24,402	25%	95%	\$2.47	0.00
Electric	School	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	1,109	10	\$17,615	0.0%	0%	\$2.70	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	347	15	\$625	95%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	347	15	\$625	95%	90%	\$0.24	0.00

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	532	15	\$956	95%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	532	15	\$956	95%	90%	\$0.24	0.00
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.52 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	5,249	20	\$10,057	100%	N/A	\$0.21	0.00
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	High Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	1,640	20	\$1,675	100%	N/A	\$0.11	0.00
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	High Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	1,640	20	\$1,675	100%	N/A	\$0.11	7,870
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	Premium Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	3,281	20	\$6,145	100%	N/A	\$0.21	1,864
Electric	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	Premium Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	3,281	20	\$6,145	100%	N/A	\$0.21	1,900
Electric	School	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	727	7	\$19,133	95%	95%	\$5.83	0.00
Electric	School	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	2,218	15	\$6,880	65%	95%	\$0.41	0.00
Electric	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	1,774	7	\$3,014	10%	95%	\$0.38	0.00
Electric	School	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	3,327	5	\$1,616	25%	25%	\$0.14	0.00
Electric	School	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	3,327	5	\$1,616	25%	25%	\$0.14	7,694
Electric	School	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	998	12	\$5,450	25%	85%	\$0.82	0.00
Electric	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	2,218	40	\$99,117	2.0%	100%	\$7.97	0.00
Electric	School	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	7	25	\$4,982	75%	85%	\$65.84	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	2,723	10	\$6,011	0.0%	0%	\$0.38	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	2,723	10	\$6,011	0.0%	0%	\$0.38	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	4,975	10	\$6,011	0.0%	0%	\$0.21	0.00
Electric	School	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	4,975	10	\$6,011	0.0%	0%	\$0.21	0.00
Electric	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	2,799	25	\$62	80%	90%	\$0.00	81,648
Electric	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	2,799	25	\$62	80%	90%	\$0.00	144,983
Electric	School	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,048	15	\$1,292	25%	95%	\$0.16	0.00
Electric	School	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,105	15	\$1,292	25%	95%	\$0.15	382,345

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	9,694	15	\$78,602	15%	70%	\$1.06	0.00
Electric	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	10,222	15	\$78,602	15%	70%	\$1.01	0.00
Electric	School	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,231	15	\$6,880	65%	95%	\$0.28	0.00
Electric	School	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,407	15	\$6,880	65%	95%	\$0.26	0.00
Electric	School	Cooling Dx Evap	DX Package 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	1,556	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	School	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	2,982	15	\$2,743	100%	N/A	\$0.12	534,778
Electric	School	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	2,982	15	\$2,743	100%	N/A	\$0.12	786,214
Electric	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	4,847	10	\$19,547	10%	60%	\$0.69	0.00
Electric	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	5,111	10	\$19,547	10%	60%	\$0.65	0.00
Electric	School	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	4,847	5	\$1,616	75%	75%	\$0.10	9,158,193
Electric	School	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	5,111	5	\$1,616	75%	75%	\$0.09	5,093,577
Electric	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	807	18	\$6,205	45%	85%	\$0.91	0.00
Electric	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	851	18	\$6,205	45%	85%	\$0.86	0.00
Electric	School	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	20,044	15	-\$58949.094	35%	N/A	-\$0.51	6,956,125
Electric	School	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	20,044	15	-\$58949.094	35%	N/A	-\$0.51	13,527,598
Electric	School	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,454	12	\$5,450	25%	85%	\$0.56	0.00
Electric	School	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,533	12	\$5,450	25%	85%	\$0.53	0.00
Electric	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,231	40	\$99,117	2.0%	100%	\$5.47	0.00
Electric	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,407	40	\$99,117	2.0%	100%	\$5.19	0.00
Electric	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,615	12	\$682	10%	60%	\$0.06	269,650
Electric	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,703	12	\$682	10%	60%	\$0.06	149,973
Electric	School	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	124	25	\$10,350	45%	65%	\$8.45	0.00
Electric	School	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	131	25	\$10,350	45%	65%	\$8.01	0.00

Table F.2. Commercial Residential Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	11	25	\$4,982	25%	85%	\$45.20	0.00
Electric	School	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	11	25	\$4,982	25%	85%	\$42.87	0.00
Electric	School	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	969	20	\$3,392	45%	60%	\$0.39	0.00
Electric	School	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,022	20	\$5,191	45%	60%	\$0.57	0.00
Electric	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	581	20	\$592	45%	85%	\$0.11	564,953
Electric	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	613	20	\$910	45%	85%	\$0.17	0.00
Electric	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	4,039	7	\$5,096	90%	95%	\$0.28	0.00
Electric	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	4,259	7	\$5,096	90%	95%	\$0.27	0.00
Electric	School	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	3,231	5	\$5,517	95%	50%	\$0.50	0.00
Electric	School	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	3,407	5	\$5,517	95%	50%	\$0.47	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	2,723	10	\$6,011	35%	70%	\$0.38	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	2,723	10	\$6,011	35%	70%	\$0.38	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	4,975	10	\$6,011	35%	70%	\$0.21	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	4,975	10	\$6,011	35%	70%	\$0.21	0.00
Electric	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	4,077	25	\$62	15%	90%	\$0.00	1,980,113
Electric	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	4,299	25	\$62	15%	90%	\$0.00	1,101,293
Electric	School	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,719	25	\$954	15%	25%	\$0.03	389,583
Electric	School	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	3,921	25	\$954	15%	25%	\$0.02	216,677
Electric	School	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	989	7	\$19,133	95%	95%	\$4.29	0.00
Electric	School	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,039	7	\$19,133	95%	95%	\$4.08	0.00
Electric	School	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	3,016	15	\$6,880	65%	95%	\$0.30	0.00
Electric	School	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	3,169	15	\$6,880	65%	95%	\$0.28	0.00
Electric	School	Cooling Dx Evap	DX Package 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.0 EER	Per Building	New	1,556	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	School	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	2,982	15	\$2,195	100%	N/A	\$0.10	165,865
Electric	School	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	2,982	15	\$2,195	100%	N/A	\$0.10	286,518
Electric	School	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	4,525	5	\$1,616	25%	25%	\$0.10	117,951
Electric	School	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	4,754	5	\$1,616	25%	25%	\$0.10	51,069

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	20,044	15	\$-44040.525	35%	N/A	\$-0.39	1,433,496
Electric	School	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	20,044	15	\$-44040.525	35%	N/A	\$-0.39	3,196,993
Electric	School	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,357	12	\$5,450	25%	85%	\$0.60	0.00
Electric	School	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,426	12	\$5,450	25%	85%	\$0.57	0.00
Electric	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	3,016	40	\$99,117	2.0%	100%	\$5.86	0.00
Electric	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	3,169	40	\$99,117	2.0%	100%	\$5.58	0.00
Electric	School	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	10	25	\$4,982	75%	85%	\$48.42	0.00
Electric	School	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	11	25	\$4,982	75%	85%	\$46.08	0.00
Electric	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	543	20	\$592	45%	85%	\$0.12	61,740
Electric	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	570	20	\$910	45%	85%	\$0.18	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	2,723	10	\$6,011	0.0%	0%	\$0.38	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	2,723	10	\$6,011	0.0%	0%	\$0.38	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	4,975	10	\$6,011	0.0%	0%	\$0.21	0.00
Electric	School	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	4,975	10	\$6,011	0.0%	0%	\$0.21	0.00
Electric	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	3,806	25	\$62	80%	90%	\$0.00	1,144,957
Electric	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	3,999	25	\$62	80%	90%	\$0.00	541,897
Electric	School	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	60	6	\$0.00	100%	N/A	\$0.00	291,437
Electric	School	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	60	6	\$0.00	100%	N/A	\$0.00	321,974
Electric	School	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	60	6	\$0.00	100%	N/A	\$0.00	48,044
Electric	School	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	60	6	\$0.00	100%	N/A	\$0.00	51,856
Electric	School	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	479	4	\$540	100%	N/A	\$0.40	0.00
Electric	School	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	479	4	\$540	100%	N/A	\$0.40	70
Electric	School	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	479	4	\$540	100%	N/A	\$0.40	90
Electric	School	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	16	20	\$2	100%	N/A	\$0.02	0.00
Electric	School	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	45	20	\$0.00	100%	N/A	\$0.00	79,862
Electric	School	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	45	20	\$0.00	100%	N/A	\$0.00	-1340.2581
Electric	School	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	312	20	\$43	8.8%	100%	\$0.02	173,882

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	312	20	\$43	8.8%	100%	\$0.02	173,882
Electric	School	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	369	20	\$43	8.8%	100%	\$0.01	174,802
Electric	School	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	369	20	\$43	8.8%	100%	\$0.01	174,802
Electric	School	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	16	20	\$2	100%	N/A	\$0.02	0.00
Electric	School	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	45	20	\$0.00	100%	N/A	\$0.00	27,711
Electric	School	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	45	20	\$0.00	100%	N/A	\$0.00	-174.02616
Electric	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.0 EER, 3.3 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	Existing	1,435	15	\$97,646	100%	N/A	\$63.54	0.00
Electric	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	Existing	3,071	15	\$11,211	100%	N/A	\$0.48	0.00
Electric	School	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CD2 sensors)	Constant Ventilation	Per Building	Existing	1,531	15	\$1,292	25%	95%	\$0.11	0.00
Electric	School	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CD2 sensors)	Constant Ventilation	Per Building	Existing	1,531	15	\$1,292	25%	95%	\$0.11	388,780
Electric	School	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	12,682	15	\$78,602	15%	70%	\$0.81	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	883	15	\$6,880	65%	95%	\$1.02	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	883	15	\$6,880	65%	95%	\$1.02	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,665	15	\$6,880	65%	95%	\$0.54	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,665	15	\$6,880	65%	95%	\$0.54	0.00
Electric	School	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	6,341	5	\$1,616	75%	75%	\$0.07	0.00
Electric	School	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	6,341	5	\$1,616	75%	75%	\$0.07	4,639,013
Electric	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	1,056	18	\$6,205	45%	85%	\$0.69	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	3,843	14	\$23,451	5.0%	95%	\$0.83	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	3,843	14	\$23,451	5.0%	95%	\$0.83	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	5,016	14	\$23,451	5.0%	95%	\$0.64	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	5,016	14	\$23,451	5.0%	95%	\$0.64	0.00

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	1,902	12	\$5,450	25%	85%	\$0.43	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	883	40	\$99,117	2.0%	100%	\$20.00	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	883	40	\$99,117	2.0%	100%	\$20.00	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,665	40	\$99,117	2.0%	100%	\$10.61	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,665	40	\$99,117	2.0%	100%	\$10.61	0.00
Electric	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	Existing	13,400	30	\$94,492	5.0%	N/A	\$4.84	0.00
Electric	School	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,170	12	\$682	10%	60%	\$0.03	0.00
Electric	School	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,170	12	\$682	10%	60%	\$0.03	205,192
Electric	School	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	5,045	25	\$10,350	45%	65%	\$0.21	1,438,344
Electric	School	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	5,045	25	\$10,350	45%	65%	\$0.21	1,438,344
Electric	School	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,534	25	\$10,350	45%	65%	\$0.16	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,534	25	\$10,350	45%	65%	\$0.16	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	640	25	\$4,982	25%	85%	\$0.79	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	640	25	\$4,982	25%	85%	\$0.79	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	831	25	\$4,982	25%	85%	\$0.61	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	831	25	\$4,982	25%	85%	\$0.61	0.00
Electric	School	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,268	20	\$3,392	45%	60%	\$0.30	0.00
Electric	School	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,268	20	\$5,191	45%	60%	\$0.46	0.00
Electric	School	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	760	20	\$592	45%	85%	\$0.09	0.00
Electric	School	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	760	20	\$910	45%	85%	\$0.13	273,808
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,832	25	\$18,476	15%	85%	\$0.28	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,832	25	\$18,476	15%	85%	\$0.28	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	9,442	25	\$18,476	15%	85%	\$0.20	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	9,442	25	\$18,476	15%	85%	\$0.20	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,331	25	\$5,701	15%	95%	\$0.44	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,331	25	\$5,701	15%	95%	\$0.44	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,836	25	\$5,701	15%	95%	\$0.32	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	1,836	25	\$5,701	15%	95%	\$0.32	0.00
Electric	School	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	6,742	25	\$45,423	10%	45%	\$0.69	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	5,284	7	\$5,096	90%	95%	\$0.21	0.00
Electric	School	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	4,227	3	\$5,517	95%	50%	\$0.60	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	569	10	\$6,011	35%	70%	\$1.79	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	569	10	\$6,011	35%	70%	\$1.79	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	1,960	10	\$6,011	35%	70%	\$0.52	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	1,960	10	\$6,011	35%	70%	\$0.52	0.00
Electric	School	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	559	25	\$954	15%	25%	\$0.17	0.00
Electric	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.0 EER, 3.3 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	1,435	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	3,071	15	\$8,972	100%	N/A	\$0.38	159
Electric	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	3,071	15	\$8,972	100%	N/A	\$0.38	0.00
Electric	School	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,306	7	\$19,133	95%	95%	\$3.25	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	832	15	\$6,880	65%	95%	\$1.08	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	832	15	\$6,880	65%	95%	\$1.08	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,569	15	\$6,880	65%	95%	\$0.57	0.00
Electric	School	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,569	15	\$6,880	65%	95%	\$0.57	0.00
Electric	School	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	5,976	5	\$1,616	25%	25%	\$0.08	0.00
Electric	School	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	5,976	5	\$1,616	25%	25%	\$0.08	52,500
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	3,621	14	\$23,451	5.0%	95%	\$0.88	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	3,621	14	\$23,451	5.0%	95%	\$0.88	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	4,727	14	\$23,451	5.0%	95%	\$0.68	0.00
Electric	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	4,727	14	\$23,451	5.0%	95%	\$0.68	0.00
Electric	School	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	1,792	12	\$5,450	25%	85%	\$0.46	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	832	40	\$99,117	2.0%	100%	\$21.23	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	832	40	\$99,117	2.0%	100%	\$21.23	0.00
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,569	40	\$99,117	2.0%	100%	\$11.26	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,569	40	\$99,117	2.0%	100%	\$11.26	0.00
Electric	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 135 to 240 kBTuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	13,400	30	\$57,179	5.0%	N/A	\$2.46	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	603	25	\$4,982	75%	85%	\$0.84	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	603	25	\$4,982	75%	85%	\$0.84	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	783	25	\$4,982	75%	85%	\$0.65	0.00
Electric	School	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	783	25	\$4,982	75%	85%	\$0.65	0.00
Electric	School	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	717	20	\$592	45%	85%	\$0.09	0.00
Electric	School	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	717	20	\$910	45%	85%	\$0.14	29,682
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,254	25	\$5,701	15%	95%	\$0.46	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,254	25	\$5,701	15%	95%	\$0.46	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,730	25	\$5,701	15%	95%	\$0.34	0.00
Electric	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	1,730	25	\$5,701	15%	95%	\$0.34	0.00
Electric	School	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	587	25	\$4,749	95%	85%	\$0.82	0.00
Electric	School	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	587	25	\$4,749	95%	85%	\$0.82	51,973
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	New	569	10	\$6,011	0.0%	0%	\$1.79	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	New	569	10	\$6,011	0.0%	0%	\$1.79	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	New	1,960	10	\$6,011	0.0%	0%	\$0.52	0.00
Electric	School	Heat Pump	Window Film	Window Film	No Film	Per Building	New	1,960	10	\$6,011	0.0%	0%	\$0.52	0.00
Electric	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	4,258	8	\$954	75%	70%	\$0.04	0.00
Electric	School	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	3,537	15	\$3,601	62%	90%	\$0.13	0.00
Electric	School	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	3,537	15	\$5,515	62%	90%	\$0.20	0.00
Electric	School	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,237	8	\$3,562	90%	75%	\$0.58	0.00
Electric	School	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,237	8	\$5,460	90%	75%	\$0.88	0.00
Electric	School	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	2,421	8	\$674	5.0%	50%	\$0.06	0.00
Electric	School	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	4,710	17	\$3,200	75%	50%	\$0.08	0.00
Electric	School	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	1,473	8	\$310	25%	25%	\$0.04	0.00
Electric	School	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	1,473	8	\$475	25%	25%	\$0.06	0.00
Electric	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	4,258	8	\$954	75%	70%	\$0.04	0.00
Electric	School	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	3,537	15	\$3,601	62%	90%	\$0.13	0.00
Electric	School	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	3,537	15	\$5,515	62%	90%	\$0.20	0.00
Electric	School	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,237	8	\$3,562	90%	75%	\$0.58	0.00
Electric	School	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,237	8	\$5,460	90%	75%	\$0.88	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Potential (kWh)
Electric	School	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	2,421	8	\$674	5.0%	50%	\$0.06	0.00
Electric	School	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	4,710	17	\$3,200	75%	50%	\$0.08	0.00
Electric	School	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	1,718	10	\$1,621	10%	75%	\$0.16	0.00
Electric	School	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	1,718	10	\$2,482	10%	75%	\$0.25	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,682	8	\$11,216	30%	80%	\$0.48	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,682	8	\$11,216	30%	80%	\$0.48	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	7,139	8	\$11,216	30%	80%	\$0.31	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	7,139	8	\$11,216	30%	80%	\$0.31	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,511	8	\$8,410	30%	80%	\$0.48	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,511	8	\$8,410	30%	80%	\$0.48	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,354	8	\$8,410	30%	80%	\$0.31	0.00
Electric	School	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,354	8	\$8,410	30%	80%	\$0.31	0.00
Electric	School	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	241	6	\$90	10%	80%	\$0.06	0.00
Electric	School	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	Existing	147	6	\$74	10%	80%	\$0.11	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	13,092	13	\$86,956	50%	N/A	\$0.96	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	13,092	13	\$86,956	50%	N/A	\$0.96	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	13,108	13	\$87,062	50%	N/A	\$0.96	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	13,108	13	\$87,062	50%	N/A	\$0.96	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,931	13	\$2,006	100%	N/A	\$0.12	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,931	13	\$2,006	100%	N/A	\$0.12	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,935	13	\$2,009	100%	N/A	\$0.12	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,935	13	\$2,009	100%	N/A	\$0.12	0.00

Table F.2. Commercial † tric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	5,387	13	\$4,982	100%	N/A	\$0.14	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	5,387	13	\$4,982	100%	N/A	\$0.14	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	5,394	13	\$4,987	100%	N/A	\$0.14	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	5,394	13	\$4,987	100%	N/A	\$0.14	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	6,094	13	\$14,039	100%	N/A	\$0.38	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	6,094	13	\$14,039	100%	N/A	\$0.38	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	6,102	13	\$14,055	100%	N/A	\$0.38	0.00
Electric	School	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	6,102	13	\$14,055	100%	N/A	\$0.38	0.00
Electric	School	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	5,412	8	\$3,562	75%	75%	\$0.13	0.00
Electric	School	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	5,412	8	\$5,460	75%	75%	\$0.20	0.00
Electric	School	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	6,443	8	\$310	5.0%	25%	\$0.01	445,924
Electric	School	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	6,443	8	\$475	5.0%	25%	\$0.01	512,155
Electric	School	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,591	15	\$1,285	100%	N/A	\$0.12	0.00
Electric	School	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	2,078	15	\$5,109	95%	N/A	\$0.32	0.00
Electric	School	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,760	29	\$37,214	50%	N/A	\$2.00	0.00
Electric	School	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,071	19	\$103	25%	N/A	\$-0.02	280,149

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,071	19	\$103	25%	N/A	\$-0.02	309,998
Electric	School	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	482	15	\$23,559	100%	N/A	\$6.24	0.00
Electric	School	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	574	8	\$3,562	75%	75%	\$1.24	0.00
Electric	School	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	574	8	\$5,460	75%	75%	\$1.90	0.00
Electric	School	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	684	8	\$310	10%	25%	\$0.09	0.00
Electric	School	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	684	8	\$475	10%	25%	\$0.14	0.00
Electric	School	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	172	11	\$67	95%	65%	\$0.06	0.00
Electric	School	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	172	11	\$67	95%	65%	\$0.06	0.00
Electric	School	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	263	11	\$103	95%	65%	\$0.06	0.00
Electric	School	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	263	11	\$103	95%	65%	\$0.06	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	34	13	\$28	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	34	13	\$28	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	52	13	\$43	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	52	13	\$43	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	1,593	10	\$1,621	10%	75%	\$0.17	0.00
Electric	School	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	1,593	10	\$2,482	10%	75%	\$0.26	0.00
Electric	School	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,760	8	\$11,216	30%	80%	\$0.60	0.00
Electric	School	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,760	8	\$11,216	30%	80%	\$0.60	0.00
Electric	School	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,733	8	\$11,216	30%	80%	\$0.39	0.00
Electric	School	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,733	8	\$11,216	30%	80%	\$0.39	0.00
Electric	School	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,820	8	\$8,410	30%	80%	\$0.60	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,820	8	\$8,410	30%	80%	\$0.60	0.00
Electric	School	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,300	8	\$8,410	30%	80%	\$0.39	0.00
Electric	School	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,300	8	\$8,410	30%	80%	\$0.39	0.00
Electric	School	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	121	6	\$28	10%	80%	\$0.02	6,727
Electric	School	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	121	6	\$28	10%	80%	\$0.02	7,534
Electric	School	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	54	6	\$20	10%	80%	\$0.09	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	34	13	\$28	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	34	13	\$28	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	52	13	\$43	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	52	13	\$43	95%	95%	\$0.12	0.00
Electric	School	Lighting Interior Other	Lighting Package - High Efficiency	8% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	6,374	13	\$10,606	100%	N/A	\$0.24	0.00
Electric	School	Lighting Interior Other	Lighting Package - High Efficiency	8% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	6,374	13	\$16,625	100%	N/A	\$0.37	0.00
Electric	School	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	5,019	8	\$3,562	75%	75%	\$0.14	0.00
Electric	School	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	5,019	8	\$5,460	75%	75%	\$0.22	0.00
Electric	School	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,029	4	\$33	85%	N/A	\$-0.02	0.00
Electric	School	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,843	4	\$51	85%	N/A	\$-0.02	0.00
Electric	School	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	2,532	1	\$10	100%	N/A	\$0.01	0.00
Electric	School	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,048	1	\$15	100%	N/A	\$0.01	0.00
Electric	School	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,052	12	\$827	85%	N/A	\$0.02	1,761,481

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,879	12	\$1,318	85%	N/A	\$0.02	2,546,207
Electric	School	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	245	8	\$3,562	75%	75%	\$2.90	0.00
Electric	School	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	245	8	\$5,460	75%	75%	\$4.45	0.00
Electric	School	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	292	8	\$310	1.0%	25%	\$0.21	0.00
Electric	School	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	292	8	\$475	1.0%	25%	\$0.33	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	3	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	3	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	93	4	\$0.00	75%	45%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	26	10	\$0.00	95%	75%	\$0.00	129,026
Electric	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	26	10	\$0.00	95%	75%	\$0.00	151,523
Electric	School	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	621	10	\$439	75%	85%	\$0.12	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	649	4	\$129	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	649	4	\$129	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	994	4	\$199	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	994	4	\$199	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	3	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	3	7	\$0.00	10%	90%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	93	4	\$0.00	75%	45%	\$0.00	0.00
Electric	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	26	10	\$0.00	95%	75%	\$0.00	15,809

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	26	10	\$0.00	95%	75%	\$0.00	17,296
Electric	School	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	New	621	10	\$439	75%	85%	\$0.12	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	649	4	\$129	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	649	4	\$129	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	994	4	\$199	60%	90%	\$0.07	0.00
Electric	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	994	4	\$199	60%	90%	\$0.07	0.00
Electric	School	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	164	6	\$204	100%	N/A	\$0.31	0.00
Electric	School	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	164	6	\$204	100%	N/A	\$0.31	32
Electric	School	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	164	6	\$204	100%	N/A	\$0.31	45
Electric	School	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	Existing	3,498	10	\$149	100%	N/A	\$0.01	82,988
Electric	School	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	Existing	3,498	10	\$149	100%	N/A	\$0.01	90,427
Electric	School	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	Existing	9,933	10	\$499	75%	N/A	\$0.01	831,270
Electric	School	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	Existing	9,933	10	\$499	75%	N/A	\$0.01	916,343
Electric	School	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$149	75%	25%	\$0.00	222,927
Electric	School	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$149	75%	25%	\$0.00	261,797
Electric	School	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	New	3,498	10	\$149	100%	N/A	\$0.01	16,978
Electric	School	Pool Pump	Pool Pump - Two Speed	Pool Pump - Two Speed	Pool Pump - Constant Speed	Per Building	New	3,498	10	\$149	100%	N/A	\$0.01	18,315
Electric	School	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	New	9,933	10	\$499	75%	N/A	\$0.01	165,026
Electric	School	Pool Pump	Pool Pump - VSD	Pool Pump - VSD	Pool Pump - Constant Speed	Per Building	New	9,933	10	\$499	75%	N/A	\$0.01	178,182
Electric	School	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	453	6	\$67	100%	N/A	\$0.04	21,472
Electric	School	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	453	6	\$67	100%	N/A	\$0.04	35,637
Electric	School	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	453	6	\$67	100%	N/A	\$0.04	0.00
Electric	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	469	8	\$38	15%	75%	\$0.02	301,667
Electric	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	469	8	\$38	15%	75%	\$0.02	350,147
Electric	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	469	15	\$113	5.0%	50%	\$0.03	67,192
Electric	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	469	15	\$113	5.0%	50%	\$0.03	77,990
Electric	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	324	15	\$36	5.0%	90%	\$0.01	83,566
Electric	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	324	15	\$36	5.0%	90%	\$0.01	96,996
Electric	School	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	40	15	\$25	5.0%	90%	\$0.08	0.00
Electric	School	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	Existing	317	10	\$263	25%	80%	\$0.14	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	Existing	430	10	\$356	25%	80%	\$0.14	0.00
Electric	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	Existing	100	10	\$3,301	5.0%	70%	\$5.56	0.00
Electric	School	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	46	8	\$5	1.0%	95%	\$0.02	2,539
Electric	School	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	46	8	\$5	1.0%	95%	\$0.02	2,947
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	193	5	\$31	30%	90%	\$0.05	296,147
Electric	School	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	193	5	\$31	30%	90%	\$0.05	343,739
Electric	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	Existing	393	3	\$62	10%	90%	\$0.07	0.00
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	6	12	\$-2.5856	95%	80%	\$-0.06	30,362
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	6	12	\$-2.5856	95%	80%	\$-0.06	30,362
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	6	12	\$-2.5856	95%	80%	\$-0.06	35,241
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	6	12	\$-2.5856	95%	80%	\$-0.06	35,241
Electric	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	12	4	\$7	95%	80%	\$0.22	0.00
Electric	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	12	4	\$7	95%	80%	\$0.22	0.00
Electric	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	78	15	\$87	10%	95%	\$0.15	0.00
Electric	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	469	8	\$38	15%	20%	\$0.02	9,763
Electric	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	469	8	\$38	15%	20%	\$0.02	10,805
Electric	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	304	15	\$74	5.0%	50%	\$0.03	5,155
Electric	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	304	15	\$74	5.0%	50%	\$0.03	5,731

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	New	206	10	\$170	25%	80%	\$0.14	0.00
Electric	School	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	New	279	10	\$232	25%	80%	\$0.14	0.00
Electric	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	New	65	10	\$3,301	5.0%	70%	\$8.55	0.00
Electric	School	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	30	8	\$2	1.0%	95%	\$0.02	199
Electric	School	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	30	8	\$2	1.0%	95%	\$0.02	221
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	7	15	\$7	35%	80%	\$0.14	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	8	12	\$7	95%	80%	\$0.13	0.00
Electric	School	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	193	5	\$31	30%	90%	\$0.05	36,088
Electric	School	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	193	5	\$31	30%	90%	\$0.05	39,940
Electric	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	New	127	3	\$15	5.0%	90%	\$0.06	0.00
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	6	12	\$-2.5856	95%	80%	\$-0.06	4,072
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	6	12	\$-2.5856	95%	80%	\$-0.06	4,072
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	6	12	\$-2.5856	95%	80%	\$-0.06	3,679
Electric	School	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	6	12	\$-2.5856	95%	80%	\$-0.06	3,679
Electric	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	12	4	\$7	95%	80%	\$0.22	0.00
Electric	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	12	4	\$7	95%	80%	\$0.22	0.00
Electric	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	12	4	\$7	95%	80%	\$0.22	0.00
Electric	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	12	4	\$7	95%	80%	\$0.22	0.00
Electric	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	78	15	\$87	10%	95%	\$0.15	0.00
Electric	School	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	560	20	\$1,522	100%	N/A	\$0.31	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	628	20	\$2,042	100%	N/A	\$0.36	0.00
Electric	School	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	492	20	\$118	100%	N/A	\$0.03	311,263
Electric	School	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	492	20	\$118	100%	N/A	\$0.03	312,792
Electric	School	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	156	20	\$54	100%	N/A	\$0.04	0.00
Electric	School	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	3,840	20	\$405	8.8%	100%	\$0.01	1,497,276
Electric	School	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	3,840	20	\$405	8.8%	100%	\$0.01	1,497,276
Electric	School	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	3,918	20	\$393	8.8%	100%	\$0.01	1,794,192
Electric	School	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	3,918	20	\$393	8.8%	100%	\$0.01	1,794,192
Electric	School	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	560	20	\$1,522	100%	N/A	\$0.31	0.00
Electric	School	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	628	20	\$2,042	100%	N/A	\$0.36	0.00
Electric	School	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	492	20	\$118	100%	N/A	\$0.03	133,204
Electric	School	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	492	20	\$118	100%	N/A	\$0.03	147,386
Electric	School	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	156	20	\$54	100%	N/A	\$0.04	0.00
Electric	School	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	78	15	\$6,880	65%	95%	\$11.48	0.00
Electric	School	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	99	15	\$6,880	65%	95%	\$9.01	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	143	15	\$81,120	2.5%	65%	\$73.80	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	182	15	\$81,120	2.5%	65%	\$57.96	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	143	15	\$67,000	2.5%	65%	\$60.95	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	182	15	\$67,000	2.5%	65%	\$47.87	0.00
Electric	School	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	35	12	\$5,450	25%	85%	\$23.19	0.00
Electric	School	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	44	12	\$5,450	25%	85%	\$18.22	0.00
Electric	School	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	78	40	\$99,117	2.0%	100%	\$225.43	0.00
Electric	School	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	99	40	\$99,117	2.0%	100%	\$177.06	0.00
Electric	School	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	39	12	\$682	10%	60%	\$2.61	1,902

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	49	12	\$682	10%	60%	\$2.05	0.00
Electric	School	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$10,350	45%	65%	\$348.15	0.00
Electric	School	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$10,350	45%	65%	\$273.45	0.00
Electric	School	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.27	25	\$4,982	25%	85%	\$1,863.26	0.00
Electric	School	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.34	25	\$4,982	25%	85%	\$1,463.46	0.00
Electric	School	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	73	9	\$49	100%	N/A	\$0.12	6,904
Electric	School	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	93	9	\$49	100%	N/A	\$0.10	15,373
Electric	School	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	98	25	\$62	15%	90%	\$0.06	10,770
Electric	School	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	125	25	\$62	15%	90%	\$0.05	8,285
Electric	School	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	90	25	\$954	15%	25%	\$1.08	0.00
Electric	School	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	114	25	\$954	15%	25%	\$0.85	0.00
Electric	School	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	78	15	\$6,880	65%	95%	\$11.48	0.00
Electric	School	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	99	15	\$6,880	65%	95%	\$9.01	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	143	15	\$64,898	2.5%	65%	\$59.04	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	182	15	\$64,898	2.5%	65%	\$46.37	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	143	15	\$53,602	2.5%	65%	\$48.76	0.00
Electric	School	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	182	15	\$53,602	2.5%	65%	\$38.30	0.00
Electric	School	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	35	12	\$5,450	25%	85%	\$23.19	0.00
Electric	School	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	44	12	\$5,450	25%	85%	\$18.22	0.00
Electric	School	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	78	40	\$99,117	2.0%	100%	\$225.43	0.00
Electric	School	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	99	40	\$99,117	2.0%	100%	\$177.06	0.00
Electric	School	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.27	25	\$4,982	75%	85%	\$1,863.26	0.00
Electric	School	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.34	25	\$4,982	75%	85%	\$1,463.46	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	73	9	\$49	100%	N/A	\$0.12	2,358
Electric	School	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	93	9	\$49	100%	N/A	\$0.10	3,532
Electric	School	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	98	25	\$62	80%	90%	\$0.06	5,726
Electric	School	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	125	25	\$62	80%	90%	\$0.05	5,135
Electric	School	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	2,052	15	\$67,031	2.5%	65%	\$4.27	0.00
Electric	School	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	148	12	\$5,450	25%	85%	\$5.50	0.00
Electric	School	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	330	12	\$682	10%	60%	\$0.31	0.00
Electric	School	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	650	25	\$10,350	45%	65%	\$1.62	0.00
Electric	School	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	82	25	\$4,982	25%	85%	\$6.16	0.00
Electric	School	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	794	25	\$18,476	15%	85%	\$2.37	0.00
Electric	School	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	147	25	\$5,701	15%	95%	\$3.92	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	400	25	\$45,423	10%	45%	\$11.55	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	400	25	\$45,423	10%	45%	\$11.55	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,051	25	\$45,423	10%	45%	\$4.40	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,051	25	\$45,423	10%	45%	\$4.40	0.00
Electric	School	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	2,052	15	\$45,966	2.5%	65%	\$2.93	0.00
Electric	School	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	148	12	\$5,450	25%	85%	\$5.50	0.00
Electric	School	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	82	25	\$4,982	75%	85%	\$6.16	0.00
Electric	School	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	147	25	\$5,701	15%	95%	\$3.92	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	400	25	\$4,749	95%	85%	\$1.21	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	400	25	\$4,749	95%	85%	\$1.21	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,051	25	\$4,749	95%	85%	\$0.46	0.00
Electric	School	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,051	25	\$4,749	95%	85%	\$0.46	0.00
Electric	School	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	142	9	\$20	100%	N/A	\$0.03	491,772
Electric	School	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	142	9	\$20	100%	N/A	\$0.03	540,147
Electric	School	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	Existing	489	4	\$1,835	10%	65%	\$1.32	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	142	9	\$20	100%	N/A	\$0.03	69,210
Electric	School	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	142	9	\$20	100%	N/A	\$0.03	74,541
Electric	School	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	New	488	4	\$1,835	10%	65%	\$1.33	0.00
Electric	School	Space Heat	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	358	15	\$1,292	25%	95%	\$0.47	0.00
Electric	School	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	2,688	15	\$78,602	15%	70%	\$3.82	0.00
Electric	School	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,344	5	\$1,616	75%	75%	\$0.35	0.00
Electric	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	224	18	\$6,205	45%	85%	\$3.28	0.00
Electric	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,344	14	\$23,451	5.0%	95%	\$2.38	0.00
Electric	School	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	403	12	\$5,450	25%	85%	\$2.03	0.00
Electric	School	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	896	12	\$682	10%	60%	\$0.11	0.00
Electric	School	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,763	25	\$10,350	45%	65%	\$0.60	0.00
Electric	School	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	223	25	\$4,982	25%	85%	\$2.27	0.00
Electric	School	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	268	20	\$3,392	45%	60%	\$1.42	0.00
Electric	School	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	268	20	\$5,191	45%	60%	\$2.17	0.00
Electric	School	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	161	20	\$592	45%	85%	\$0.41	0.00
Electric	School	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	161	20	\$910	45%	85%	\$0.63	0.00
Electric	School	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,155	25	\$18,476	15%	85%	\$0.87	0.00
Electric	School	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	401	25	\$5,701	15%	95%	\$1.45	0.00
Electric	School	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,849	25	\$45,423	10%	45%	\$1.62	0.00
Electric	School	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,120	7	\$5,096	90%	95%	\$1.01	0.00
Electric	School	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	293	7	\$19,133	95%	95%	\$14.43	0.00
Electric	School	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,344	5	\$1,616	25%	25%	\$0.35	0.00
Electric	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,344	14	\$23,451	5.0%	95%	\$2.38	0.00
Electric	School	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	403	12	\$5,450	25%	85%	\$2.03	0.00
Electric	School	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	223	25	\$4,982	75%	85%	\$2.27	0.00
Electric	School	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	161	20	\$592	45%	85%	\$0.41	0.00
Electric	School	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	161	20	\$910	45%	85%	\$0.63	0.00
Electric	School	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	401	25	\$5,701	15%	95%	\$1.45	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,086	25	\$4,749	95%	85%	\$0.45	0.00
Electric	School	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	2,073	10	\$284	100%	N/A	\$0.02	3,990,386
Electric	School	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	2,073	10	\$284	100%	N/A	\$0.02	4,170,337
Electric	School	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	2,073	10	\$284	100%	N/A	\$0.02	760,962
Electric	School	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	2,073	10	\$284	100%	N/A	\$0.02	817,733
Electric	School	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	13,463	10	\$3,169	5.0%	90%	\$0.04	2,250,204
Electric	School	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	13,463	10	\$3,169	5.0%	90%	\$0.04	2,474,980
Electric	School	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	20,194	15	\$78,602	15%	70%	\$0.51	0.00
Electric	School	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	1,119	18	\$2,699	95%	85%	\$0.29	0.00
Electric	School	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	686	15	\$170	95%	90%	\$0.03	2,199,631
Electric	School	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	686	15	\$170	95%	90%	\$0.03	2,419,355
Electric	School	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	17,165	20	\$2,880	55%	65%	\$0.02	25,299,597
Electric	School	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	17,165	20	\$2,880	55%	65%	\$0.02	27,826,810
Electric	School	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	456	7	\$129	65%	25%	\$0.06	273,063
Electric	School	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	456	7	\$129	65%	25%	\$0.06	300,340
Electric	School	Ventilation And Circulation	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	Per Building	Existing	1,077	18	\$1,706	65%	85%	\$0.19	0.00
Electric	School	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	13,463	10	\$3,169	5.0%	90%	\$0.04	242,022
Electric	School	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	13,463	10	\$3,169	5.0%	90%	\$0.04	342,013

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	1,119	18	\$2,699	95%	85%	\$0.29	0.00
Electric	School	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	686	15	\$170	95%	90%	\$0.03	230,519
Electric	School	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	686	15	\$170	95%	90%	\$0.03	327,184
Electric	School	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	17,165	20	\$2,880	55%	45%	\$0.02	1,739,860
Electric	School	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	17,165	20	\$2,880	55%	45%	\$0.02	2,250,217
Electric	School	Ventilation And Circulation	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	Per Building	New	1,077	18	\$1,706	63%	85%	\$0.19	0.00
Electric	School	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	262	9	\$100	25%	95%	\$0.07	0.00
Electric	School	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	123	14	\$41	5.0%	95%	\$0.05	2,652
Electric	School	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	123	14	\$41	5.0%	95%	\$0.05	3,057
Electric	School	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	663	10	\$7,182	55%	95%	\$1.84	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	26	12	\$74	20%	35%	\$0.42	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	452	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	452	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	380	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	380	12	\$235	70%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	132	12	\$113	75%	75%	\$0.13	0.00
Electric	School	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	2,653	25	\$3,599	2.5%	95%	\$0.14	0.00
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	512	9	\$2	95%	75%	\$0.00	311,520
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	512	9	\$2	95%	75%	\$0.00	359,051
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	211	9	\$0.00	95%	50%	\$0.00	85,515
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	211	9	\$0.00	95%	50%	\$0.00	98,563
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	79	9	\$25	95%	25%	\$0.06	13,419
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	79	9	\$25	95%	25%	\$0.06	15,466
Electric	School	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	773	4	\$235	95%	75%	\$0.11	0.00
Electric	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$23	95%	85%	\$0.02	128,334
Electric	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$23	95%	85%	\$0.02	147,915
Electric	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$56	95%	25%	\$0.05	30,441
Electric	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$56	95%	25%	\$0.05	35,086
Electric	School	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	331	10	\$393	75%	75%	\$0.20	0.00
Electric	School	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,512	10	\$328	25%	95%	\$0.04	279,648
Electric	School	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,512	10	\$504	25%	95%	\$0.06	321,070
Electric	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	7,922	15	\$1,450	75%	N/A	\$0.03	32,904
Electric	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	7,922	15	\$1,450	75%	N/A	\$0.03	36,515
Electric	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	7,829	15	\$866	75%	N/A	\$0.02	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	262	9	\$100	25%	95%	\$0.07	0.00
Electric	School	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	123	14	\$41	5.0%	95%	\$0.05	234
Electric	School	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	123	14	\$41	5.0%	95%	\$0.05	266
Electric	School	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	657	10	\$7,182	55%	95%	\$1.85	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	26	12	\$74	20%	35%	\$0.42	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	452	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	452	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	380	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	380	12	\$235	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$258	70%	95%	\$0.09	0.00
Electric	School	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	2,631	25	\$2,880	2.5%	95%	\$0.11	0.00
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	508	9	\$2	95%	75%	\$0.00	27,595
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	508	9	\$2	95%	75%	\$0.00	31,351
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	209	9	\$0.00	95%	50%	\$0.00	7,575

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	209	9	\$0.00	95%	50%	\$0.00	8,606
Electric	School	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	773	4	\$235	95%	75%	\$0.11	0.00
Electric	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$23	95%	85%	\$0.02	11,463
Electric	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$23	95%	85%	\$0.02	13,023
Electric	School	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	328	10	\$393	75%	75%	\$0.20	0.00
Electric	School	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,500	10	\$328	25%	95%	\$0.04	28,140
Electric	School	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,500	10	\$504	25%	95%	\$0.06	24,757
Electric	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	7,922	15	\$1,450	75%	N/A	\$0.03	5,398
Electric	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	7,922	15	\$1,450	75%	N/A	\$0.03	6,065
Electric	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	7,829	15	\$866	75%	N/A	\$0.02	0.00
Electric	School	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	262	9	\$100	25%	95%	\$0.07	0.00
Electric	School	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	123	14	\$41	5.0%	95%	\$0.05	6,153
Electric	School	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	123	14	\$41	5.0%	95%	\$0.05	7,092
Electric	School	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	693	10	\$7,182	25%	95%	\$1.76	0.00
Electric	School	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	26	12	\$74	75%	35%	\$0.42	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	452	12	\$258	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	452	12	\$258	75%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	380	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	380	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$258	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	414	12	\$258	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	138	12	\$113	75%	75%	\$0.12	0.00
Electric	School	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	2,773	25	\$3,599	2.5%	95%	\$0.13	0.00
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	535	9	\$2	95%	75%	\$0.00	755,208
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	535	9	\$2	95%	75%	\$0.00	870,428
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	220	9	\$0.00	95%	50%	\$0.00	207,312
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	220	9	\$0.00	95%	50%	\$0.00	238,941
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	83	9	\$25	95%	25%	\$0.06	32,531
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	83	9	\$25	95%	25%	\$0.06	37,495
Electric	School	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	773	4	\$235	95%	75%	\$0.11	0.00
Electric	School	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$23	95%	85%	\$0.02	297,703
Electric	School	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	223	10	\$23	95%	85%	\$0.02	343,122
Electric	School	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$56	95%	25%	\$0.05	70,617
Electric	School	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	180	10	\$56	95%	25%	\$0.05	81,391
Electric	School	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	346	10	\$393	75%	75%	\$0.19	0.00
Electric	School	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,580	10	\$328	25%	95%	\$0.04	678,360
Electric	School	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	1,580	10	\$504	25%	95%	\$0.05	781,507

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	7,326	15	\$7,449	75%	N/A	\$0.15	0.00
Electric	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	428	15	\$323	100%	N/A	\$0.10	0.00
Electric	School	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	262	9	\$100	25%	95%	\$0.07	0.00
Electric	School	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	123	14	\$41	5.0%	95%	\$0.05	703
Electric	School	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	123	14	\$41	5.0%	95%	\$0.05	801
Electric	School	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	672	10	\$7,182	25%	95%	\$1.81	0.00
Electric	School	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	26	12	\$74	75%	35%	\$0.42	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	452	12	\$258	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	452	12	\$258	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	380	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	380	12	\$235	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$258	75%	95%	\$0.09	0.00
Electric	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	414	12	\$258	75%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	School	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	2,690	25	\$2,880	2.5%	95%	\$0.11	0.00
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	519	9	\$2	95%	75%	\$0.00	84,788
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	519	9	\$2	95%	75%	\$0.00	96,367
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	214	9	\$0.00	95%	50%	\$0.00	23,275
Electric	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	214	9	\$0.00	95%	50%	\$0.00	26,453
Electric	School	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	773	4	\$235	95%	75%	\$0.11	0.00
Electric	School	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$23	95%	85%	\$0.02	34,455
Electric	School	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	223	10	\$23	95%	85%	\$0.02	39,161
Electric	School	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	336	10	\$393	75%	75%	\$0.20	0.00
Electric	School	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,533	10	\$328	25%	95%	\$0.04	86,525
Electric	School	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	1,533	10	\$504	25%	95%	\$0.06	76,093
Electric	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	7,326	15	\$7,449	75%	N/A	\$0.15	204
Electric	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	7,326	15	\$7,449	75%	N/A	\$0.15	421
Electric	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	428	15	\$323	100%	N/A	\$0.10	-38,409,972
Electric	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	428	15	\$323	100%	N/A	\$0.10	-323,222,976
Electric	Small Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	1,524	4	\$173	100%	N/A	\$0.04	2,385,686
Electric	Small Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	1,524	4	\$173	100%	N/A	\$0.04	2,745,785
Electric	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	2,351	4	\$174	95%	75%	\$0.03	46,572,266
Electric	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	2,351	4	\$174	95%	75%	\$0.03	50,107,362
Electric	Small Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	1,524	4	\$173	100%	N/A	\$0.04	811,495
Electric	Small Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	1,524	4	\$173	100%	N/A	\$0.04	937,027
Electric	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	2,351	4	\$174	95%	75%	\$0.03	5,474,470
Electric	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	2,351	4	\$174	95%	75%	\$0.03	6,537,421
Electric	Small Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,380	15	\$1,973	35%	95%	\$0.19	0.00
Electric	Small Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,558	15	\$1,973	35%	95%	\$0.17	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	374	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	958	15	\$646	100%	N/A	\$0.09	1,401,815
Electric	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	958	15	\$646	100%	N/A	\$0.09	1,412,562
Electric	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	2,070	10	\$4,040	10%	20%	\$0.33	0.00
Electric	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	2,338	10	\$4,040	10%	20%	\$0.29	0.00
Electric	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	345	18	\$1,852	45%	85%	\$0.64	0.00
Electric	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	389	18	\$1,852	45%	85%	\$0.56	0.00
Electric	Small Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	7,934	15	-\$13542.214	35%	N/A	-\$0.29	20,995,595
Electric	Small Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	7,934	15	-\$13542.214	35%	N/A	-\$0.29	27,904,041
Electric	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,380	40	\$57,122	2.0%	100%	\$3.67	0.00
Electric	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,558	40	\$57,122	2.0%	100%	\$3.25	0.00
Electric	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	690	12	\$250	10%	60%	\$0.05	513,114
Electric	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	779	12	\$250	10%	60%	\$0.05	417,453
Electric	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	22	25	\$2,969	45%	65%	\$13.51	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	25	25	\$2,969	45%	65%	\$11.96	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	4	25	\$1,429	25%	85%	\$30.37	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	5	25	\$1,429	25%	85%	\$26.89	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	414	20	\$260	45%	60%	\$0.07	1,381,252
Electric	Small Office	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	467	20	\$347	45%	60%	\$0.08	1,116,007
Electric	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	248	20	\$46	45%	85%	\$0.02	1,190,901
Electric	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	280	20	\$61	45%	85%	\$0.02	955,182
Electric	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,725	7	\$1,521	90%	95%	\$0.20	0.00
Electric	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,948	7	\$1,521	90%	95%	\$0.17	0.00
Electric	Small Office	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	1,380	5	\$1,140	95%	50%	\$0.24	0.00
Electric	Small Office	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	1,558	5	\$1,140	95%	50%	\$0.21	0.00
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	1,087	10	\$2,210	35%	70%	\$0.35	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	1,087	10	\$2,210	35%	70%	\$0.35	0.00
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	1,952	10	\$2,210	35%	70%	\$0.19	0.00
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	1,952	10	\$2,210	35%	70%	\$0.19	0.00
Electric	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,741	25	\$23	15%	90%	\$0.00	3,794,052
Electric	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	1,966	25	\$23	15%	90%	\$0.00	3,065,471
Electric	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,588	25	\$351	15%	25%	\$0.02	741,332
Electric	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	1,793	25	\$351	15%	25%	\$0.02	603,125
Electric	Small Office	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	417	7	\$5,712	95%	95%	\$3.03	0.00
Electric	Small Office	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	467	7	\$5,712	95%	95%	\$2.71	0.00
Electric	Small Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,273	15	\$1,973	35%	95%	\$0.20	0.00
Electric	Small Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,426	15	\$1,973	35%	95%	\$0.18	0.00
Electric	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	374	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	958	15	\$517	100%	N/A	\$0.07	400,479
Electric	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	958	15	\$517	100%	N/A	\$0.07	473,496
Electric	Small Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	7,934	15	\$-9872.601	35%	N/A	\$-0.21	3,954,223
Electric	Small Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	7,934	15	\$-9872.601	35%	N/A	\$-0.21	6,110,622
Electric	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,273	40	\$57,122	2.0%	100%	\$3.98	0.00
Electric	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,426	40	\$57,122	2.0%	100%	\$3.56	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	4	25	\$1,429	75%	85%	\$32.92	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	4	25	\$1,429	75%	85%	\$29.39	0.00
Electric	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	229	20	\$46	45%	85%	\$0.02	119,557
Electric	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	256	20	\$61	45%	85%	\$0.03	82,174
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	1,087	10	\$2,210	0.0%	0%	\$0.35	0.00
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	1,087	10	\$2,210	0.0%	0%	\$0.35	0.00
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	1,952	10	\$2,210	0.0%	0%	\$0.19	0.00
Electric	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	1,952	10	\$2,210	0.0%	0%	\$0.19	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,606	25	\$23	80%	90%	\$0.00	2,196,355
Electric	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	1,799	25	\$23	80%	90%	\$0.00	1,509,607
Electric	Small Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	64	6	\$1	100%	N/A	\$0.01	1,827,335
Electric	Small Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	64	6	\$1	100%	N/A	\$0.01	1,849,558
Electric	Small Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	64	6	\$1	100%	N/A	\$0.01	275,986
Electric	Small Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	64	6	\$1	100%	N/A	\$0.01	325,144
Electric	Small Office	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	205	4	\$232	100%	N/A	\$0.40	0.00
Electric	Small Office	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	205	4	\$232	100%	N/A	\$0.40	164
Electric	Small Office	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	205	4	\$232	100%	N/A	\$0.40	229
Electric	Small Office	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	7	20	\$0.77	100%	N/A	\$0.01	0.00
Electric	Small Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	19	20	\$0.77	100%	N/A	\$0.00	182,703
Electric	Small Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	19	20	\$0.77	100%	N/A	\$0.00	-3346.72734
Electric	Small Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	132	20	\$18	8.8%	100%	\$0.02	397,796
Electric	Small Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	132	20	\$18	8.8%	100%	\$0.02	397,796
Electric	Small Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	155	20	\$18	8.8%	100%	\$0.01	436,496
Electric	Small Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	155	20	\$18	8.8%	100%	\$0.01	436,496
Electric	Small Office	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	7	20	\$0.77	100%	N/A	\$0.01	0.00
Electric	Small Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	19	20	\$0.77	100%	N/A	\$0.00	63,396
Electric	Small Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	19	20	\$0.77	100%	N/A	\$0.00	-434.55732
Electric	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	692	15	\$2,406	100%	N/A	\$0.45	0.00
Electric	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	1,468	15	\$4,813	100%	N/A	\$0.43	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	561	15	\$1,973	35%	95%	\$0.46	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	561	15	\$1,973	35%	95%	\$0.46	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,144	15	\$1,973	35%	95%	\$0.23	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	1,144	15	\$1,973	35%	95%	\$0.23	0.00
Electric	Small Office	Heat Pump	Duct Repair and Sealing	Reduction in Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	428	18	\$1,852	45%	85%	\$0.51	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	852	14	\$13,276	5.0%	95%	\$2.12	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	852	14	\$13,276	5.0%	95%	\$2.12	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,727	14	\$13,276	5.0%	95%	\$1.05	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,727	14	\$13,276	5.0%	95%	\$1.05	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	561	40	\$57,122	2.0%	100%	\$9.04	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	561	40	\$57,122	2.0%	100%	\$9.04	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,144	40	\$57,122	2.0%	100%	\$4.43	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	1,144	40	\$57,122	2.0%	100%	\$4.43	0.00
Electric	Small Office	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	5,029	30	\$42,711	5.0%	N/A	\$2.65	0.00
Electric	Small Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,284	12	\$250	10%	60%	\$0.03	152,635
Electric	Small Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,284	12	\$250	10%	60%	\$0.03	727,243
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	675	25	\$2,969	45%	65%	\$0.45	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	675	25	\$2,969	45%	65%	\$0.45	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,341	25	\$2,969	45%	65%	\$0.23	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,341	25	\$2,969	45%	65%	\$0.23	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	144	25	\$1,429	25%	85%	\$1.01	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	144	25	\$1,429	25%	85%	\$1.01	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	287	25	\$1,429	25%	85%	\$0.51	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	287	25	\$1,429	25%	85%	\$0.51	0.00
Electric	Small Office	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	513	20	\$260	45%	60%	\$0.06	272,982
Electric	Small Office	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	513	20	\$347	45%	60%	\$0.08	1,291,693
Electric	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	308	20	\$46	45%	85%	\$0.02	235,150
Electric	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	308	20	\$61	45%	85%	\$0.02	1,107,675
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,199	25	\$5,300	15%	85%	\$0.45	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,199	25	\$5,300	15%	85%	\$0.45	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3,148	25	\$5,300	15%	85%	\$0.17	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3,148	25	\$5,300	15%	85%	\$0.17	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	236	25	\$1,634	15%	95%	\$0.70	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	236	25	\$1,634	15%	95%	\$0.70	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	612	25	\$1,634	15%	95%	\$0.27	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	612	25	\$1,634	15%	95%	\$0.27	0.00
Electric	Small Office	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,732	25	\$13,031	10%	45%	\$0.49	0.00
Electric	Small Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,141	7	\$1,521	90%	95%	\$0.16	0.00
Electric	Small Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,141	7	\$1,521	90%	95%	\$0.16	20,483,915
Electric	Small Office	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	1,713	3	\$1,140	95%	50%	\$0.30	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	356	10	\$2,210	35%	70%	\$1.05	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	356	10	\$2,210	35%	70%	\$1.05	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	1,305	10	\$2,210	35%	70%	\$0.29	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	1,305	10	\$2,210	35%	70%	\$0.29	0.00
Electric	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	662	25	\$23	15%	90%	\$0.00	226,902
Electric	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	662	25	\$23	15%	90%	\$0.00	1,073,656
Electric	Small Office	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	876	25	\$351	15%	25%	\$0.04	64,752
Electric	Small Office	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	876	25	\$351	15%	25%	\$0.04	306,393
Electric	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	692	15	\$1,925	100%	N/A	\$0.36	0.00
Electric	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,468	15	\$3,851	100%	N/A	\$0.34	243
Electric	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,468	15	\$3,851	100%	N/A	\$0.34	631
Electric	Small Office	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	528	7	\$5,712	95%	95%	\$2.40	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	527	15	\$1,973	35%	95%	\$0.49	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	527	15	\$1,973	35%	95%	\$0.49	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,076	15	\$1,973	35%	95%	\$0.24	0.00
Electric	Small Office	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,076	15	\$1,973	35%	95%	\$0.24	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	801	14	\$13,276	5.0%	95%	\$2.26	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	801	14	\$13,276	5.0%	95%	\$2.26	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,625	14	\$13,276	5.0%	95%	\$1.11	0.00
Electric	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,625	14	\$13,276	5.0%	95%	\$1.11	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	527	40	\$57,122	2.0%	100%	\$9.61	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	527	40	\$57,122	2.0%	100%	\$9.61	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,076	40	\$57,122	2.0%	100%	\$4.71	0.00
Electric	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,076	40	\$57,122	2.0%	100%	\$4.71	0.00
Electric	Small Office	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	5,029	30	\$73,308	5.0%	N/A	\$1.34	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	136	25	\$1,429	75%	85%	\$1.07	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	136	25	\$1,429	75%	85%	\$1.07	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	270	25	\$1,429	75%	85%	\$0.54	0.00
Electric	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	270	25	\$1,429	75%	85%	\$0.54	0.00
Electric	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	290	20	\$46	45%	85%	\$0.02	25,704
Electric	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	290	20	\$61	45%	85%	\$0.02	103,895
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	222	25	\$1,634	15%	95%	\$0.75	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	222	25	\$1,634	15%	95%	\$0.75	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	576	25	\$1,634	15%	95%	\$0.29	0.00
Electric	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	576	25	\$1,634	15%	95%	\$0.29	0.00
Electric	Small Office	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	237	25	\$1,362	95%	85%	\$0.58	0.00
Electric	Small Office	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	237	25	\$1,362	95%	85%	\$0.58	178,515
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	356	10	\$2,210	0.0%	0%	\$1.05	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	356	10	\$2,210	0.0%	0%	\$1.05	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	1,305	10	\$2,210	0.0%	0%	\$0.29	0.00
Electric	Small Office	Heat Pump	Window Film	Window Film	No Film	Per Building	New	1,305	10	\$2,210	0.0%	0%	\$0.29	0.00
Electric	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	623	25	\$23	80%	90%	\$0.00	135,361
Electric	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	623	25	\$23	80%	90%	\$0.00	547,115
Electric	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	2,141	8	\$510	75%	70%	\$0.05	0.00
Electric	Small Office	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,778	15	\$466	62%	90%	\$0.03	33,974,690
Electric	Small Office	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,778	15	\$622	62%	90%	\$0.05	0.00
Electric	Small Office	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	760	8	\$274	90%	90%	\$0.07	0.00
Electric	Small Office	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	760	8	\$365	90%	90%	\$0.10	0.00
Electric	Small Office	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	1,406	17	\$955	75%	50%	\$0.08	0.00
Electric	Small Office	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	741	8	\$29	25%	25%	\$0.01	1,585,587
Electric	Small Office	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	741	8	\$38	25%	25%	\$0.01	1,666,481
Electric	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	2,141	8	\$510	75%	70%	\$0.05	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,778	15	\$466	62%	90%	\$0.03	4,463,169
Electric	Small Office	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,778	15	\$622	62%	90%	\$0.05	0.00
Electric	Small Office	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	760	8	\$274	90%	90%	\$0.07	0.00
Electric	Small Office	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	760	8	\$365	90%	90%	\$0.10	0.00
Electric	Small Office	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	1,406	17	\$955	75%	50%	\$0.08	0.00
Electric	Small Office	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	548	10	\$124	0.5%	75%	\$0.04	59,227
Electric	Small Office	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	548	10	\$165	0.5%	75%	\$0.05	64,645
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	6,627	8	\$6,007	30%	80%	\$0.18	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	6,627	8	\$6,007	30%	80%	\$0.18	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	7,409	8	\$6,007	30%	80%	\$0.16	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	7,409	8	\$6,007	30%	80%	\$0.16	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,970	8	\$4,505	30%	80%	\$0.18	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,970	8	\$4,505	30%	80%	\$0.18	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,557	8	\$4,505	30%	80%	\$0.16	0.00
Electric	Small Office	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,557	8	\$4,505	30%	80%	\$0.16	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,711	13	\$20,328	50%	N/A	\$0.80	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,711	13	\$20,328	50%	N/A	\$0.80	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,854	13	\$20,283	50%	N/A	\$0.77	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	3,854	13	\$20,283	50%	N/A	\$0.77	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	831	13	\$514	100%	N/A	\$0.11	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	831	13	\$514	100%	N/A	\$0.11	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	863	13	\$592	100%	N/A	\$0.12	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	863	13	\$592	100%	N/A	\$0.12	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,527	13	\$1,031	100%	N/A	\$0.11	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,527	13	\$1,031	100%	N/A	\$0.11	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,586	13	\$1,110	100%	N/A	\$0.11	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,586	13	\$1,110	100%	N/A	\$0.11	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,727	13	\$3,133	100%	N/A	\$0.32	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,727	13	\$3,133	100%	N/A	\$0.32	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,794	13	\$3,390	100%	N/A	\$0.33	0.00
Electric	Small Office	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,794	13	\$3,390	100%	N/A	\$0.33	0.00
Electric	Small Office	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,113	8	\$274	75%	90%	\$0.03	43,295,275
Electric	Small Office	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,113	8	\$365	75%	90%	\$0.03	47,255,619
Electric	Small Office	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,058	8	\$29	5.0%	25%	\$0.00	939,326
Electric	Small Office	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,058	8	\$38	5.0%	25%	\$0.00	1,025,249
Electric	Small Office	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	186	15	\$123	100%	N/A	\$0.10	0.00
Electric	Small Office	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	244	15	\$506	95%	N/A	\$0.27	0.00
Electric	Small Office	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	206	25	\$3,719	50%	N/A	\$1.79	0.00
Electric	Small Office	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	125	17	\$5	25%	N/A	-\$0.03	229,110

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	125	17	\$5	25%	N/A	\$-0.03	232,270
Electric	Small Office	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	56	15	\$2,352	100%	N/A	\$5.28	0.00
Electric	Small Office	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	81	8	\$274	75%	90%	\$0.68	0.00
Electric	Small Office	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	81	8	\$365	75%	90%	\$0.90	0.00
Electric	Small Office	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	78	8	\$29	10%	25%	\$0.07	0.00
Electric	Small Office	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	78	8	\$38	10%	25%	\$0.10	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	35	11	\$13	95%	65%	\$0.06	743,116
Electric	Small Office	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	35	11	\$13	95%	65%	\$0.06	743,116
Electric	Small Office	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	46	11	\$18	95%	65%	\$0.06	1,041,295
Electric	Small Office	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	46	11	\$18	95%	65%	\$0.06	1,041,295
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	7	13	\$6	95%	95%	\$0.13	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	7	13	\$6	95%	95%	\$0.13	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	9	13	\$7	95%	95%	\$0.12	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	9	13	\$7	95%	95%	\$0.12	0.00
Electric	Small Office	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	465	10	\$124	0.5%	75%	\$0.05	7,602
Electric	Small Office	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	465	10	\$165	0.5%	75%	\$0.06	6,219
Electric	Small Office	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,917	8	\$6,007	30%	80%	\$0.24	0.00
Electric	Small Office	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,917	8	\$6,007	30%	80%	\$0.24	0.00
Electric	Small Office	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,498	8	\$6,007	30%	80%	\$0.22	0.00
Electric	Small Office	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,498	8	\$6,007	30%	80%	\$0.22	0.00
Electric	Small Office	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,688	8	\$4,505	30%	80%	\$0.24	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,688	8	\$4,505	30%	80%	\$0.24	0.00
Electric	Small Office	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,123	8	\$4,505	30%	80%	\$0.22	0.00
Electric	Small Office	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,123	8	\$4,505	30%	80%	\$0.22	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	7	13	\$6	95%	95%	\$0.13	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	7	13	\$6	95%	95%	\$0.13	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	9	13	\$7	95%	95%	\$0.12	0.00
Electric	Small Office	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	9	13	\$7	95%	95%	\$0.12	0.00
Electric	Small Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	1,861	13	\$2,084	100%	N/A	\$0.16	0.00
Electric	Small Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	1,861	13	\$2,084	100%	N/A	\$0.16	0.00
Electric	Small Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,560	13	\$3,024	100%	N/A	\$0.17	0.00
Electric	Small Office	Lighting Interior Other	Lighting Package - High Efficiency	11% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,560	13	\$3,024	100%	N/A	\$0.17	0.00
Electric	Small Office	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,792	8	\$274	75%	90%	\$0.03	5,557,486
Electric	Small Office	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,792	8	\$365	75%	90%	\$0.04	4,546,495
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,205	4	\$29	85%	N/A	\$-0.02	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,205	4	\$29	85%	N/A	\$-0.02	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,928	4	\$54	85%	N/A	\$-0.02	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,928	4	\$54	85%	N/A	\$-0.02	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	2,679	1	\$8	100%	N/A	\$0.01	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	2,679	1	\$8	100%	N/A	\$0.01	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,956	1	\$16	100%	N/A	\$0.01	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,956	1	\$16	100%	N/A	\$0.01	0.00
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,229	12	\$743	85%	N/A	\$0.02	9,246,329
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,229	12	\$743	85%	N/A	\$0.02	9,246,329
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,973	12	\$1,376	85%	N/A	\$0.02	16,886,972
Electric	Small Office	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,973	12	\$1,376	85%	N/A	\$0.02	16,886,972
Electric	Small Office	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	296	8	\$274	75%	90%	\$0.19	0.00
Electric	Small Office	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	296	8	\$365	75%	90%	\$0.25	0.00
Electric	Small Office	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	288	8	\$29	1.0%	25%	\$0.02	11,894
Electric	Small Office	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	288	8	\$38	1.0%	25%	\$0.03	6,758
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.77	10%	90%	\$0.09	5,993
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.77	10%	90%	\$0.09	5,993
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	4	7	\$0.77	10%	90%	\$0.04	12,982
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	4	7	\$0.77	10%	90%	\$0.04	12,982
Electric	Small Office	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	98	4	\$0.00	75%	45%	\$0.00	0.00
Electric	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	181	10	\$0.77	95%	75%	\$0.00	5,164,371
Electric	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	181	10	\$0.77	95%	75%	\$0.00	5,556,375
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	300	4	\$60	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	300	4	\$60	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	400	4	\$79	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	400	4	\$79	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.77	10%	90%	\$0.09	803

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.77	10%	90%	\$0.09	803
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	4	7	\$0.77	10%	90%	\$0.04	1,354
Electric	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	4	7	\$0.77	10%	90%	\$0.04	1,354
Electric	Small Office	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	98	4	\$0.00	75%	45%	\$0.00	0.00
Electric	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	181	10	\$0.77	95%	75%	\$0.00	579,726
Electric	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	181	10	\$0.77	95%	75%	\$0.00	692,289
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	300	4	\$60	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	300	4	\$60	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	400	4	\$79	60%	90%	\$0.07	0.00
Electric	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	400	4	\$79	60%	90%	\$0.07	0.00
Electric	Small Office	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	174	6	\$217	100%	N/A	\$0.31	0.00
Electric	Small Office	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	174	6	\$217	100%	N/A	\$0.31	187
Electric	Small Office	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	174	6	\$217	100%	N/A	\$0.31	285
Electric	Small Office	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	322	6	\$47	100%	N/A	\$0.04	82,825
Electric	Small Office	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	322	6	\$47	100%	N/A	\$0.04	150,044
Electric	Small Office	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	322	6	\$47	100%	N/A	\$0.04	0.00
Electric	Small Office	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	236	20	\$642	100%	N/A	\$0.31	0.00
Electric	Small Office	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	265	20	\$862	100%	N/A	\$0.37	0.00
Electric	Small Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	207	20	\$50	100%	N/A	\$0.03	715,586
Electric	Small Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	207	20	\$50	100%	N/A	\$0.03	777,247
Electric	Small Office	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	66	20	\$23	100%	N/A	\$0.04	0.00
Electric	Small Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,620	20	\$171	8.8%	100%	\$0.01	3,738,813
Electric	Small Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,620	20	\$171	8.8%	100%	\$0.01	3,738,813
Electric	Small Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,653	20	\$165	8.8%	100%	\$0.01	4,104,633
Electric	Small Office	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	1,653	20	\$165	8.8%	100%	\$0.01	4,104,633
Electric	Small Office	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	236	20	\$642	100%	N/A	\$0.31	0.00
Electric	Small Office	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	265	20	\$862	100%	N/A	\$0.37	0.00
Electric	Small Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	207	20	\$50	100%	N/A	\$0.03	332,621
Electric	Small Office	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	207	20	\$50	100%	N/A	\$0.03	337,180

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	66	20	\$23	100%	N/A	\$0.04	0.00
Electric	Small Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	212	15	\$1,973	35%	95%	\$1.22	0.00
Electric	Small Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	269	15	\$1,973	35%	95%	\$0.96	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	388	15	\$16,766	2.5%	65%	\$5.64	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	494	15	\$16,766	2.5%	65%	\$4.43	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	388	15	\$13,848	2.5%	65%	\$4.66	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	494	15	\$13,848	2.5%	65%	\$3.66	0.00
Electric	Small Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	212	40	\$57,122	2.0%	100%	\$23.91	0.00
Electric	Small Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	269	40	\$57,122	2.0%	100%	\$18.78	0.00
Electric	Small Office	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	106	12	\$250	10%	60%	\$0.36	26,507
Electric	Small Office	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	134	12	\$250	10%	60%	\$0.28	0.00
Electric	Small Office	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$2,969	45%	65%	\$87.94	0.00
Electric	Small Office	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4	25	\$2,969	45%	65%	\$69.07	0.00
Electric	Small Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.73	25	\$1,429	25%	85%	\$197.67	0.00
Electric	Small Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.93	25	\$1,429	25%	85%	\$155.25	0.00
Electric	Small Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	198	9	\$50	100%	N/A	\$0.05	97,854
Electric	Small Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	252	9	\$50	100%	N/A	\$0.04	317,657
Electric	Small Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	267	25	\$23	15%	90%	\$0.01	193,813
Electric	Small Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	340	25	\$23	15%	90%	\$0.01	217,743
Electric	Small Office	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	244	25	\$351	15%	25%	\$0.15	0.00
Electric	Small Office	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	310	25	\$351	15%	25%	\$0.12	42,840
Electric	Small Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	212	15	\$1,973	35%	95%	\$1.22	0.00
Electric	Small Office	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	269	15	\$1,973	35%	95%	\$0.96	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	388	15	\$13,413	2.5%	65%	\$4.51	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	494	15	\$13,413	2.5%	65%	\$3.54	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	388	15	\$11,079	2.5%	65%	\$3.73	0.00
Electric	Small Office	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	494	15	\$11,079	2.5%	65%	\$2.93	0.00
Electric	Small Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	212	40	\$57,122	2.0%	100%	\$23.91	0.00
Electric	Small Office	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	269	40	\$57,122	2.0%	100%	\$18.78	0.00
Electric	Small Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.73	25	\$1,429	75%	85%	\$197.67	0.00
Electric	Small Office	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.93	25	\$1,429	75%	85%	\$155.25	0.00
Electric	Small Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	198	9	\$50	100%	N/A	\$0.05	33,433
Electric	Small Office	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	252	9	\$50	100%	N/A	\$0.04	73,346
Electric	Small Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	267	25	\$23	80%	90%	\$0.01	102,741
Electric	Small Office	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	340	25	\$23	80%	90%	\$0.01	134,952
Electric	Small Office	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	2,420	15	\$13,855	2.5%	65%	\$0.75	0.00
Electric	Small Office	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	389	12	\$250	10%	60%	\$0.10	0.00
Electric	Small Office	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	453	25	\$2,969	45%	65%	\$0.67	0.00
Electric	Small Office	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	97	25	\$1,429	25%	85%	\$1.50	0.00
Electric	Small Office	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	937	25	\$5,300	15%	85%	\$0.58	0.00
Electric	Small Office	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	174	25	\$1,634	15%	95%	\$0.95	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	472	25	\$13,031	10%	45%	\$2.81	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	472	25	\$13,031	10%	45%	\$2.81	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,240	25	\$13,031	10%	45%	\$1.07	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,240	25	\$13,031	10%	45%	\$1.07	0.00
Electric	Small Office	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	2,420	15	\$9,500	2.5%	65%	\$0.51	0.00
Electric	Small Office	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	97	25	\$1,429	75%	85%	\$1.50	0.00
Electric	Small Office	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	174	25	\$1,634	15%	95%	\$0.95	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	472	25	\$1,362	95%	85%	\$0.29	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	472	25	\$1,362	95%	85%	\$0.29	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,240	25	\$1,362	95%	85%	\$0.11	0.00
Electric	Small Office	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,240	25	\$1,362	95%	85%	\$0.11	0.00
Electric	Small Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	157	9	\$20	100%	N/A	\$0.02	3,225,394
Electric	Small Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	157	9	\$20	100%	N/A	\$0.02	3,245,669
Electric	Small Office	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	Existing	542	4	\$2,035	10%	65%	\$1.32	0.00
Electric	Small Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	157	9	\$20	100%	N/A	\$0.02	415,875
Electric	Small Office	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	157	9	\$20	100%	N/A	\$0.02	488,893
Electric	Small Office	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	New	541	4	\$2,035	10%	65%	\$1.33	0.00
Electric	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	156	18	\$1,852	45%	85%	\$1.40	0.00
Electric	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	936	14	\$13,276	5.0%	95%	\$1.93	0.00
Electric	Small Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	624	12	\$250	10%	60%	\$0.06	0.00
Electric	Small Office	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	726	25	\$2,969	45%	65%	\$0.42	0.00
Electric	Small Office	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	155	25	\$1,429	25%	85%	\$0.94	0.00
Electric	Small Office	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	187	20	\$260	45%	60%	\$0.16	0.00
Electric	Small Office	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	187	20	\$347	45%	60%	\$0.21	0.00
Electric	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	112	20	\$46	45%	85%	\$0.05	222,473
Electric	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	112	20	\$61	45%	85%	\$0.06	0.00
Electric	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,501	25	\$5,300	15%	85%	\$0.36	0.00
Electric	Small Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	279	25	\$1,634	15%	95%	\$0.60	0.00
Electric	Small Office	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,985	25	\$13,031	10%	45%	\$0.67	0.00
Electric	Small Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	780	7	\$1,521	90%	95%	\$0.43	0.00
Electric	Small Office	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	204	7	\$5,712	95%	95%	\$6.19	0.00
Electric	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	936	14	\$13,276	5.0%	95%	\$1.93	0.00
Electric	Small Office	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	155	25	\$1,429	75%	85%	\$0.94	0.00
Electric	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	112	20	\$46	45%	85%	\$0.05	25,988
Electric	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	112	20	\$61	45%	85%	\$0.06	0.00
Electric	Small Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	279	25	\$1,634	15%	95%	\$0.60	0.00
Electric	Small Office	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	756	25	\$1,362	95%	85%	\$0.18	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	626	10	\$85	100%	N/A	\$0.02	6,834,765
Electric	Small Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	626	10	\$85	100%	N/A	\$0.02	7,138,284
Electric	Small Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	626	10	\$85	100%	N/A	\$0.02	1,247,142
Electric	Small Office	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	626	10	\$85	100%	N/A	\$0.02	1,462,818
Electric	Small Office	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	71	15	\$50	95%	90%	\$0.09	0.00
Electric	Small Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	1,791	20	\$859	55%	65%	\$0.05	10,563,551
Electric	Small Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	1,791	20	\$859	55%	65%	\$0.05	14,318,337
Electric	Small Office	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	136	7	\$38	65%	25%	\$0.06	0.00
Electric	Small Office	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	71	15	\$50	95%	90%	\$0.09	0.00
Electric	Small Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	1,791	20	\$859	55%	45%	\$0.05	726,458
Electric	Small Office	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	1,791	20	\$859	55%	45%	\$0.05	1,157,853
Electric	Small Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	58	10	\$2,144	55%	80%	\$6.28	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	6	12	\$17	90%	35%	\$0.42	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	11	12	\$31	75%	75%	\$0.41	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	232	25	\$1,000	2.5%	95%	\$0.44	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	44	9	\$0.00	95%	75%	\$0.00	20,572
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	44	9	\$0.00	95%	75%	\$0.00	21,721
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	18	9	\$0.00	95%	50%	\$0.00	5,647
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	18	9	\$0.00	95%	50%	\$0.00	5,962

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	6	9	\$4	95%	25%	\$0.12	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	6	9	\$5	95%	25%	\$0.14	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	29	10	\$59	75%	85%	\$0.35	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	29	10	\$77	75%	85%	\$0.46	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	692	15	\$402	75%	N/A	\$0.10	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	684	15	\$240	75%	N/A	\$0.07	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	57	10	\$2,144	55%	80%	\$6.33	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	6	12	\$17	90%	35%	\$0.42	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	230	25	\$800	2.5%	95%	\$0.35	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	44	9	\$0.00	95%	75%	\$0.00	1,649
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	44	9	\$0.00	95%	75%	\$0.00	2,073
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	18	9	\$0.00	95%	50%	\$0.00	452
Electric	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	18	9	\$0.00	95%	50%	\$0.00	569
Electric	Small Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	28	10	\$59	75%	85%	\$0.35	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	28	10	\$77	75%	85%	\$0.46	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	692	15	\$402	75%	N/A	\$0.10	0.00
Electric	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	684	15	\$240	75%	N/A	\$0.07	0.00
Electric	Small Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	60	10	\$2,144	25%	80%	\$6.01	0.00
Electric	Small Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	6	12	\$17	75%	35%	\$0.42	0.00
Electric	Small Office	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	12	12	\$31	75%	75%	\$0.39	0.00
Electric	Small Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	242	25	\$1,000	2.5%	95%	\$0.42	0.00
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	46	9	\$0.00	95%	75%	\$0.00	591,891
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	46	9	\$0.00	95%	75%	\$0.00	625,002

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	19	9	\$0.00	95%	50%	\$0.00	162,480
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	19	9	\$0.00	95%	50%	\$0.00	171,569
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$4	95%	25%	\$0.12	0.00
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$5	95%	25%	\$0.14	0.00
Electric	Small Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	30	10	\$59	75%	85%	\$0.33	0.00
Electric	Small Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	30	10	\$77	75%	85%	\$0.44	0.00
Electric	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	640	15	\$2,069	75%	N/A	\$0.47	0.00
Electric	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	37	15	\$90	100%	N/A	\$0.32	0.00
Electric	Small Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Install Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	58	10	\$2,144	25%	80%	\$6.19	0.00
Electric	Small Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	6	12	\$17	75%	35%	\$0.42	0.00
Electric	Small Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	235	25	\$800	2.5%	95%	\$0.35	0.00
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	45	9	\$0.00	95%	75%	\$0.00	60,881
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	45	9	\$0.00	95%	75%	\$0.00	75,527
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	18	9	\$0.00	95%	50%	\$0.00	16,712
Electric	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	18	9	\$0.00	95%	50%	\$0.00	20,733
Electric	Small Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	29	10	\$59	75%	85%	\$0.34	0.00
Electric	Small Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	29	10	\$77	75%	85%	\$0.45	0.00
Electric	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	640	15	\$2,069	75%	N/A	\$0.47	154
Electric	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	640	15	\$2,069	75%	N/A	\$0.47	346
Electric	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	37	15	\$90	100%	N/A	\$0.32	-28,888,728
Electric	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	37	15	\$90	100%	N/A	\$0.32	-265,643,496
Electric	Small Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	195	4	\$22	100%	N/A	\$0.04	179,293
Electric	Small Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	195	4	\$22	100%	N/A	\$0.04	195,021
Electric	Small Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	195	4	\$22	100%	N/A	\$0.04	52,679
Electric	Small Retail	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	195	4	\$22	100%	N/A	\$0.04	60,933

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	312	15	\$1,832	80%	95%	\$0.77	0.00
Electric	Small Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	382	15	\$1,832	80%	95%	\$0.63	0.00
Electric	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	109	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	279	15	\$712	100%	N/A	\$0.33	0.00
Electric	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	469	10	\$4,453	10%	80%	\$1.61	0.00
Electric	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	574	10	\$4,453	10%	80%	\$1.32	0.00
Electric	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	78	18	\$1,256	45%	85%	\$1.90	0.00
Electric	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	95	18	\$1,256	45%	85%	\$1.55	0.00
Electric	Small Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	2,314	15	\$-14926.789	35%	N/A	\$-1.08	1,179,605
Electric	Small Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	2,314	15	\$-14926.789	35%	N/A	\$-1.08	1,376,319
Electric	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	312	40	\$53,039	2.0%	100%	\$15.05	0.00
Electric	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	382	40	\$53,039	2.0%	100%	\$12.29	0.00
Electric	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	156	12	\$146	10%	60%	\$0.14	35,068
Electric	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	191	12	\$146	10%	60%	\$0.11	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	12	25	\$2,757	45%	65%	\$23.25	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	14	25	\$2,757	45%	65%	\$18.99	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1	25	\$1,326	25%	85%	\$124.29	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1	25	\$1,326	25%	85%	\$101.54	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	93	20	\$469	45%	60%	\$0.56	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	114	20	\$522	45%	60%	\$0.51	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	56	20	\$82	45%	85%	\$0.16	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	68	20	\$91	45%	85%	\$0.15	0.00
Electric	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	391	7	\$1,032	90%	95%	\$0.59	0.00
Electric	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	478	7	\$1,032	90%	95%	\$0.48	0.00
Electric	Small Retail	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	312	5	\$1,256	95%	50%	\$1.17	0.00
Electric	Small Retail	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	382	5	\$1,256	95%	50%	\$0.96	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	725	10	\$1,292	35%	70%	\$0.30	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	725	10	\$1,292	35%	70%	\$0.30	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	840	10	\$1,292	35%	70%	\$0.26	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	840	10	\$1,292	35%	70%	\$0.26	0.00
Electric	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	394	25	\$13	15%	90%	\$0.00	256,408
Electric	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	483	25	\$13	15%	90%	\$0.00	287,695
Electric	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	360	25	\$205	15%	25%	\$0.06	50,296
Electric	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	440	25	\$205	15%	25%	\$0.05	56,603
Electric	Small Retail	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	96	7	\$3,874	95%	95%	\$8.89	0.00
Electric	Small Retail	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	116	7	\$3,874	95%	95%	\$7.39	0.00
Electric	Small Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	294	15	\$1,832	80%	95%	\$0.81	0.00
Electric	Small Retail	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	354	15	\$1,832	80%	95%	\$0.68	0.00
Electric	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	109	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	279	15	\$570	100%	N/A	\$0.27	0.00
Electric	Small Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	2,314	15	\$-10881.979	35%	N/A	\$-0.81	201,544
Electric	Small Retail	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	2,314	15	\$-10881.979	35%	N/A	\$-0.81	230,940
Electric	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	294	40	\$53,039	2.0%	100%	\$15.97	0.00
Electric	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	354	40	\$53,039	2.0%	100%	\$13.27	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1	25	\$1,326	75%	85%	\$131.94	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1	25	\$1,326	75%	85%	\$109.64	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	53	20	\$82	45%	85%	\$0.17	0.00
Electric	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	63	20	\$91	45%	85%	\$0.16	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	725	10	\$1,292	0.0%	0%	\$0.30	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	725	10	\$1,292	0.0%	0%	\$0.30	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	840	10	\$1,292	0.0%	0%	\$0.26	0.00
Electric	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	840	10	\$1,292	0.0%	0%	\$0.26	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	371	25	\$13	80%	90%	\$0.00	93,438
Electric	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	447	25	\$13	80%	90%	\$0.00	104,482
Electric	Small Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	15	6	\$0.00	100%	N/A	\$0.00	130,019
Electric	Small Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	15	6	\$0.00	100%	N/A	\$0.00	132,429
Electric	Small Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	15	6	\$0.00	100%	N/A	\$0.00	19,760
Electric	Small Retail	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	15	6	\$0.00	100%	N/A	\$0.00	23,134
Electric	Small Retail	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	26	4	\$29	100%	N/A	\$0.40	0.00
Electric	Small Retail	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	26	4	\$29	100%	N/A	\$0.40	6
Electric	Small Retail	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	26	4	\$29	100%	N/A	\$0.40	8
Electric	Small Retail	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	3	20	\$0.52	100%	N/A	\$0.02	0.00
Electric	Small Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	9	20	\$0.52	100%	N/A	\$0.01	21,458
Electric	Small Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	9	20	\$0.52	100%	N/A	\$0.01	-390.62154
Electric	Small Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	62	20	\$8	8.8%	100%	\$0.02	54,619
Electric	Small Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	62	20	\$8	8.8%	100%	\$0.02	54,619
Electric	Small Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	74	20	\$8	8.8%	100%	\$0.01	59,557
Electric	Small Retail	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	74	20	\$8	8.8%	100%	\$0.01	59,557
Electric	Small Retail	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	3	20	\$0.52	100%	N/A	\$0.02	0.00
Electric	Small Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	9	20	\$0.52	100%	N/A	\$0.01	7,446
Electric	Small Retail	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	9	20	\$0.52	100%	N/A	\$0.01	-50.7204
Electric	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	195	15	\$2,653	100%	N/A	\$1.78	0.00
Electric	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	398	15	\$5,306	100%	N/A	\$1.74	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	206	15	\$1,832	80%	95%	\$1.16	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	206	15	\$1,832	80%	95%	\$1.16	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	300	15	\$1,832	80%	95%	\$0.80	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	300	15	\$1,832	80%	95%	\$0.80	0.00
Electric	Small Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	123	18	\$1,256	45%	85%	\$1.20	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	292	14	\$9,005	5.0%	95%	\$4.19	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	292	14	\$9,005	5.0%	95%	\$4.19	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	433	14	\$9,005	5.0%	95%	\$2.83	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	433	14	\$9,005	5.0%	95%	\$2.83	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	206	40	\$53,039	2.0%	100%	\$22.80	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	206	40	\$53,039	2.0%	100%	\$22.80	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	300	40	\$53,039	2.0%	100%	\$15.67	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	300	40	\$53,039	2.0%	100%	\$15.67	0.00
Electric	Small Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	1,426	30	\$57,304	5.0%	N/A	\$10.29	0.00
Electric	Small Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	371	12	\$146	10%	60%	\$0.06	0.00
Electric	Small Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	371	12	\$146	10%	60%	\$0.06	19,182
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	390	25	\$2,757	45%	65%	\$0.72	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	390	25	\$2,757	45%	65%	\$0.72	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	570	25	\$2,757	45%	65%	\$0.49	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	570	25	\$2,757	45%	65%	\$0.49	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	49	25	\$1,326	25%	85%	\$2.73	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	49	25	\$1,326	25%	85%	\$2.73	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	72	25	\$1,326	25%	85%	\$1.87	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	72	25	\$1,326	25%	85%	\$1.87	0.00
Electric	Small Retail	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	148	20	\$469	45%	60%	\$0.35	0.00
Electric	Small Retail	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	148	20	\$522	45%	60%	\$0.39	0.00
Electric	Small Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	89	20	\$82	45%	85%	\$0.10	29,148
Electric	Small Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	89	20	\$91	45%	85%	\$0.11	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	449	25	\$4,921	15%	85%	\$1.11	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	449	25	\$4,921	15%	85%	\$1.11	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	763	25	\$4,921	15%	85%	\$0.66	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	763	25	\$4,921	15%	85%	\$0.66	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	88	25	\$1,518	15%	95%	\$1.75	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	88	25	\$1,518	15%	95%	\$1.75	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Technical Potential (kWh)
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	148	25	\$1,518	15%	95%	\$1.04	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	148	25	\$1,518	15%	95%	\$1.04	0.00
Electric	Small Retail	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	790	25	\$12,099	10%	45%	\$1.56	0.00
Electric	Small Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	619	7	\$1,032	90%	95%	\$0.37	0.00
Electric	Small Retail	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	495	3	\$1,256	95%	50%	\$1.16	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	302	10	\$1,292	35%	70%	\$0.73	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	302	10	\$1,292	35%	70%	\$0.73	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	509	10	\$1,292	35%	70%	\$0.43	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	509	10	\$1,292	35%	70%	\$0.43	0.00
Electric	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	271	25	\$13	15%	90%	\$0.01	0.00
Electric	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	271	25	\$13	15%	90%	\$0.01	40,172
Electric	Small Retail	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	311	25	\$205	15%	25%	\$0.07	0.00
Electric	Small Retail	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	311	25	\$205	15%	25%	\$0.07	10,006
Electric	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	195	15	\$2,122	100%	N/A	\$1.42	0.00
Electric	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	398	15	\$4,245	100%	N/A	\$1.39	15
Electric	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	398	15	\$4,245	100%	N/A	\$1.39	0.00
Electric	Small Retail	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	150	7	\$3,874	95%	95%	\$5.72	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	190	15	\$1,832	80%	95%	\$1.26	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	190	15	\$1,832	80%	95%	\$1.26	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	277	15	\$1,832	80%	95%	\$0.86	0.00
Electric	Small Retail	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	277	15	\$1,832	80%	95%	\$0.86	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	270	14	\$9,005	5.0%	95%	\$4.54	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	270	14	\$9,005	5.0%	95%	\$4.54	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	400	14	\$9,005	5.0%	95%	\$3.06	0.00
Electric	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	400	14	\$9,005	5.0%	95%	\$3.06	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	190	40	\$53,039	2.0%	100%	\$24.69	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	190	40	\$53,039	2.0%	100%	\$24.69	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	277	40	\$53,039	2.0%	100%	\$16.96	0.00
Electric	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	277	40	\$53,039	2.0%	100%	\$16.96	0.00
Electric	Small Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	1,426	30	\$80,804	5.0%	N/A	\$5.22	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	45	25	\$1,326	75%	85%	\$2.96	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	45	25	\$1,326	75%	85%	\$2.96	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	66	25	\$1,326	75%	85%	\$2.02	0.00
Electric	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	66	25	\$1,326	75%	85%	\$2.02	0.00
Electric	Small Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	82	20	\$82	45%	85%	\$0.11	2,682
Electric	Small Retail	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	82	20	\$91	45%	85%	\$0.12	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	81	25	\$1,518	15%	95%	\$1.90	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	81	25	\$1,518	15%	95%	\$1.90	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	137	25	\$1,518	15%	95%	\$1.12	0.00
Electric	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	137	25	\$1,518	15%	95%	\$1.12	0.00
Electric	Small Retail	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	67	25	\$1,265	95%	85%	\$1.91	0.00
Electric	Small Retail	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	67	25	\$1,265	95%	85%	\$1.91	4,697
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	302	10	\$1,292	0.0%	0%	\$0.73	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	302	10	\$1,292	0.0%	0%	\$0.73	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	509	10	\$1,292	0.0%	0%	\$0.43	0.00
Electric	Small Retail	Heat Pump	Window Film	Window Film	No Film	Per Building	New	509	10	\$1,292	0.0%	0%	\$0.43	0.00
Electric	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	250	25	\$13	80%	90%	\$0.01	0.00
Electric	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	250	25	\$13	80%	90%	\$0.01	20,479
Electric	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	1,259	8	\$492	75%	70%	\$0.08	0.00
Electric	Small Retail	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,046	15	\$728	62%	90%	\$0.09	0.00
Electric	Small Retail	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	1,046	15	\$810	62%	90%	\$0.10	0.00
Electric	Small Retail	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	528	8	\$493	45%	90%	\$0.19	0.00
Electric	Small Retail	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	528	8	\$548	45%	90%	\$0.21	0.00
Electric	Small Retail	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	953	17	\$648	75%	50%	\$0.08	0.00
Electric	Small Retail	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	435	8	\$61	25%	25%	\$0.03	282,950
Electric	Small Retail	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	435	8	\$68	25%	25%	\$0.03	267,530
Electric	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	1,259	8	\$492	75%	70%	\$0.08	0.00
Electric	Small Retail	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,046	15	\$728	62%	90%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	1,046	15	\$810	62%	90%	\$0.10	0.00
Electric	Small Retail	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	528	8	\$493	45%	90%	\$0.19	0.00
Electric	Small Retail	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	528	8	\$548	45%	90%	\$0.21	0.00
Electric	Small Retail	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	953	17	\$648	75%	50%	\$0.08	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	642	10	\$224	0.5%	75%	\$0.06	22,514
Electric	Small Retail	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	642	10	\$249	0.5%	75%	\$0.07	20,979
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	6,808	8	\$5,236	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	6,808	8	\$5,236	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	7,176	8	\$5,236	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	7,176	8	\$5,236	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,106	8	\$3,927	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,106	8	\$3,927	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,382	8	\$3,927	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,382	8	\$3,927	30%	85%	\$0.15	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	423	6	\$157	2.5%	80%	\$0.06	74,032
Electric	Small Retail	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	423	6	\$157	2.5%	80%	\$0.06	79,427
Electric	Small Retail	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	Existing	317	6	\$161	2.5%	80%	\$0.11	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,324	13	\$21,281	50%	N/A	\$0.71	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,324	13	\$21,281	50%	N/A	\$0.71	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,386	13	\$21,796	50%	N/A	\$0.72	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,386	13	\$21,796	50%	N/A	\$0.72	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	968	13	\$385	100%	N/A	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	968	13	\$385	100%	N/A	\$0.09	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	982	13	\$379	100%	N/A	\$0.09	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	982	13	\$379	100%	N/A	\$0.09	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,805	13	\$3,068	100%	N/A	\$0.28	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,805	13	\$3,068	100%	N/A	\$0.28	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,013	13	\$3,052	100%	N/A	\$0.25	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,013	13	\$3,052	100%	N/A	\$0.25	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,779	13	\$1,316	100%	N/A	\$0.09	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,779	13	\$1,316	100%	N/A	\$0.09	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,042	13	\$1,329	100%	N/A	\$0.08	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,042	13	\$1,329	100%	N/A	\$0.08	0.00
Electric	Small Retail	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,925	8	\$493	5.0%	90%	\$0.03	1,234,354
Electric	Small Retail	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,925	8	\$548	5.0%	90%	\$0.04	1,150,502
Electric	Small Retail	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,411	8	\$61	5.0%	25%	\$0.01	339,904
Electric	Small Retail	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,411	8	\$68	5.0%	25%	\$0.01	316,813
Electric	Small Retail	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,021	15	\$430	100%	N/A	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,334	15	\$1,779	95%	N/A	\$0.17	0.00
Electric	Small Retail	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,130	16	\$13,111	50%	N/A	\$1.42	0.00
Electric	Small Retail	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	687	11	\$13	25%	N/A	\$-0.03	283,513
Electric	Small Retail	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	687	11	\$13	25%	N/A	\$-0.03	289,359
Electric	Small Retail	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	309	15	\$8,292	100%	N/A	\$3.35	0.00
Electric	Small Retail	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	515	8	\$493	5.0%	90%	\$0.19	0.00
Electric	Small Retail	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	515	8	\$548	5.0%	90%	\$0.21	0.00
Electric	Small Retail	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	424	8	\$61	10%	25%	\$0.03	114,352
Electric	Small Retail	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	424	8	\$68	10%	25%	\$0.03	108,128
Electric	Small Retail	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	356	11	\$138	95%	65%	\$0.06	2,284,839
Electric	Small Retail	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	356	11	\$138	95%	65%	\$0.06	2,284,839
Electric	Small Retail	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	395	11	\$153	95%	65%	\$0.06	2,400,528
Electric	Small Retail	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	395	11	\$153	95%	65%	\$0.06	2,400,528
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	71	13	\$60	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	71	13	\$60	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	79	13	\$68	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	79	13	\$68	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	734	10	\$224	0.5%	75%	\$0.05	2,973
Electric	Small Retail	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	734	10	\$249	0.5%	75%	\$0.06	3,612
Electric	Small Retail	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,415	8	\$5,236	30%	85%	\$0.19	0.00
Electric	Small Retail	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,415	8	\$5,236	30%	85%	\$0.19	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,708	8	\$5,236	30%	85%	\$0.18	0.00
Electric	Small Retail	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	5,708	8	\$5,236	30%	85%	\$0.18	0.00
Electric	Small Retail	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,061	8	\$3,927	30%	85%	\$0.19	0.00
Electric	Small Retail	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,061	8	\$3,927	30%	85%	\$0.19	0.00
Electric	Small Retail	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,281	8	\$3,927	30%	85%	\$0.18	0.00
Electric	Small Retail	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,281	8	\$3,927	30%	85%	\$0.18	0.00
Electric	Small Retail	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	327	6	\$80	2.5%	80%	\$0.02	7,105
Electric	Small Retail	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	327	6	\$80	2.5%	80%	\$0.02	8,631
Electric	Small Retail	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	180	6	\$70	2.5%	80%	\$0.08	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	71	13	\$60	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	71	13	\$60	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	79	13	\$68	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	79	13	\$68	95%	95%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,936	13	\$12,591	100%	N/A	\$0.61	0.00
Electric	Small Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,936	13	\$12,591	100%	N/A	\$0.61	0.00
Electric	Small Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	5,505	13	\$9,689	100%	N/A	\$0.25	0.00
Electric	Small Retail	Lighting Interior Other	Lighting Package - High Efficiency	15% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	5,505	13	\$9,689	100%	N/A	\$0.25	0.00
Electric	Small Retail	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	3,339	8	\$493	5.0%	90%	\$0.03	163,025
Electric	Small Retail	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	3,339	8	\$548	5.0%	90%	\$0.03	198,029
Electric	Small Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	6,767	4	\$39	85%	N/A	\$-0.02	0.00
Electric	Small Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	18,882	4	\$111	85%	N/A	\$-0.02	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base	Standard Screw Base Interior Backstop Incandescent - Backstop EISA Standard	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,657	1	\$12	100%	N/A	\$0.01	0.00
Electric	Small Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base	Standard Screw Base Interior Backstop Incandescent - Backstop EISA Standard	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	15,786	1	\$34	100%	N/A	\$0.01	0.00
Electric	Small Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base	Above Standard Screw Base Interior LED - Above Standard	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	6,818	12	\$1,013	85%	N/A	\$0.01	6,230,366
Electric	Small Retail	Lighting Interior Screw Base	Lighting Interior - Screw Base	Above Standard Screw Base Interior LED - Above Standard	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	19,025	12	\$2,827	85%	N/A	\$0.01	17,040,401
Electric	Small Retail	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	807	8	\$493	5.0%	90%	\$0.12	0.00
Electric	Small Retail	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	807	8	\$548	5.0%	90%	\$0.14	0.00
Electric	Small Retail	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	665	8	\$61	1.0%	25%	\$0.02	4,118
Electric	Small Retail	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	665	8	\$68	1.0%	25%	\$0.02	10,865
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.52	10%	90%	\$0.05	1,931
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.52	10%	90%	\$0.05	1,931
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.52	10%	90%	\$0.05	2,314
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.52	10%	90%	\$0.05	2,314
Electric	Small Retail	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	24	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	30	10	\$0.00	95%	75%	\$0.00	249,735
Electric	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	30	10	\$0.00	95%	75%	\$0.00	270,385
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	60	4	\$12	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	60	4	\$12	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.52	10%	90%	\$0.05	258
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.52	10%	90%	\$0.05	258
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.52	10%	90%	\$0.05	241

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.52	10%	90%	\$0.05	241
Electric	Small Retail	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	24	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	30	10	\$0.00	95%	75%	\$0.00	28,210
Electric	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	30	10	\$0.00	95%	75%	\$0.00	33,477
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	54	4	\$10	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	60	4	\$12	60%	90%	\$0.07	0.00
Electric	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	60	4	\$12	60%	90%	\$0.07	0.00
Electric	Small Retail	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	43	6	\$53	100%	N/A	\$0.31	0.00
Electric	Small Retail	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	43	6	\$53	100%	N/A	\$0.31	13
Electric	Small Retail	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	43	6	\$53	100%	N/A	\$0.31	20
Electric	Small Retail	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	72	6	\$10	100%	N/A	\$0.04	5,352
Electric	Small Retail	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	72	6	\$10	100%	N/A	\$0.04	9,634
Electric	Small Retail	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	72	6	\$10	100%	N/A	\$0.04	0.00
Electric	Small Retail	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	112	20	\$306	100%	N/A	\$0.31	0.00
Electric	Small Retail	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	126	20	\$410	100%	N/A	\$0.37	0.00
Electric	Small Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	98	20	\$24	100%	N/A	\$0.03	98,252
Electric	Small Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	98	20	\$24	100%	N/A	\$0.03	106,050
Electric	Small Retail	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	31	20	\$10	100%	N/A	\$0.04	0.00
Electric	Small Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	770	20	\$81	8.8%	100%	\$0.01	510,139
Electric	Small Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	770	20	\$81	8.8%	100%	\$0.01	510,139
Electric	Small Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	786	20	\$79	8.8%	100%	\$0.01	563,582
Electric	Small Retail	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	786	20	\$79	8.8%	100%	\$0.01	563,582
Electric	Small Retail	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	112	20	\$306	100%	N/A	\$0.31	0.00
Electric	Small Retail	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	126	20	\$410	100%	N/A	\$0.37	0.00
Electric	Small Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	98	20	\$24	100%	N/A	\$0.03	45,384
Electric	Small Retail	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	98	20	\$24	100%	N/A	\$0.03	46,296
Electric	Small Retail	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	31	20	\$10	100%	N/A	\$0.04	0.00
Electric	Small Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	191	15	\$1,832	80%	95%	\$1.25	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	243	15	\$1,832	80%	95%	\$0.98	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	350	15	\$18,480	2.5%	65%	\$6.89	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	446	15	\$18,480	2.5%	65%	\$5.41	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	350	15	\$15,264	2.5%	65%	\$5.69	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	446	15	\$15,264	2.5%	65%	\$4.47	0.00
Electric	Small Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	191	40	\$53,039	2.0%	100%	\$24.62	0.00
Electric	Small Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	243	40	\$53,039	2.0%	100%	\$19.33	0.00
Electric	Small Retail	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	95	12	\$146	10%	60%	\$0.23	11,502
Electric	Small Retail	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	121	12	\$146	10%	60%	\$0.18	0.00
Electric	Small Retail	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	7	25	\$2,757	45%	65%	\$38.03	0.00
Electric	Small Retail	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	9	25	\$2,757	45%	65%	\$29.87	0.00
Electric	Small Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.66	25	\$1,326	25%	85%	\$203.32	0.00
Electric	Small Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.84	25	\$1,326	25%	85%	\$159.69	0.00
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	178	9	\$49	100%	N/A	\$0.05	42,242
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	178	9	\$49	100%	N/A	\$0.05	42,242
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	227	9	\$49	100%	N/A	\$0.04	66,105
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	227	9	\$49	100%	N/A	\$0.04	66,105
Electric	Small Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	241	25	\$13	15%	90%	\$0.01	84,099
Electric	Small Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	307	25	\$13	15%	90%	\$0.00	45,312
Electric	Small Retail	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	220	25	\$205	15%	25%	\$0.09	16,496
Electric	Small Retail	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	280	25	\$205	15%	25%	\$0.07	8,915
Electric	Small Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	191	15	\$1,832	80%	95%	\$1.25	0.00
Electric	Small Retail	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	243	15	\$1,832	80%	95%	\$0.98	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	350	15	\$14,784	2.5%	65%	\$5.51	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	446	15	\$14,784	2.5%	65%	\$4.33	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	350	15	\$12,211	2.5%	65%	\$4.55	0.00
Electric	Small Retail	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	446	15	\$12,211	2.5%	65%	\$3.58	0.00
Electric	Small Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	191	40	\$53,039	2.0%	100%	\$24.62	0.00
Electric	Small Retail	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	243	40	\$53,039	2.0%	100%	\$19.33	0.00
Electric	Small Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.66	25	\$1,326	75%	85%	\$203.32	0.00
Electric	Small Retail	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.84	25	\$1,326	75%	85%	\$159.69	0.00
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	178	9	\$49	100%	N/A	\$0.05	14,507
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	178	9	\$49	100%	N/A	\$0.05	14,507
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	227	9	\$49	100%	N/A	\$0.04	15,263
Electric	Small Retail	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	227	9	\$49	100%	N/A	\$0.04	15,263
Electric	Small Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	241	25	\$13	80%	90%	\$0.01	44,581
Electric	Small Retail	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	307	25	\$13	80%	90%	\$0.00	28,083
Electric	Small Retail	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	419	15	\$15,271	2.5%	65%	\$4.76	0.00
Electric	Small Retail	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	67	12	\$146	10%	60%	\$0.33	0.00
Electric	Small Retail	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	132	25	\$2,757	45%	65%	\$2.11	0.00
Electric	Small Retail	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	16	25	\$1,326	25%	85%	\$8.02	0.00
Electric	Small Retail	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	162	25	\$4,921	15%	85%	\$3.08	0.00
Electric	Small Retail	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	30	25	\$1,518	15%	95%	\$5.11	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	81	25	\$12,099	10%	45%	\$15.05	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	81	25	\$12,099	10%	45%	\$15.05	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	214	25	\$12,099	10%	45%	\$5.74	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	214	25	\$12,099	10%	45%	\$5.74	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	419	15	\$10,472	2.5%	65%	\$3.26	0.00
Electric	Small Retail	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	16	25	\$1,326	75%	85%	\$8.02	0.00
Electric	Small Retail	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	30	25	\$1,518	15%	95%	\$5.11	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	81	25	\$1,265	95%	85%	\$1.57	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	81	25	\$1,265	95%	85%	\$1.57	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	214	25	\$1,265	95%	85%	\$0.60	0.00
Electric	Small Retail	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	214	25	\$1,265	95%	85%	\$0.60	0.00
Electric	Small Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	30	9	\$4	100%	N/A	\$0.02	180,312
Electric	Small Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	30	9	\$4	100%	N/A	\$0.02	182,589
Electric	Small Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	30	9	\$4	100%	N/A	\$0.02	23,395
Electric	Small Retail	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	30	9	\$4	100%	N/A	\$0.02	27,331
Electric	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	26	18	\$1,256	45%	85%	\$5.59	0.00
Electric	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	159	14	\$9,005	5.0%	95%	\$7.69	0.00
Electric	Small Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	106	12	\$146	10%	60%	\$0.21	0.00
Electric	Small Retail	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	209	25	\$2,757	45%	65%	\$1.34	0.00
Electric	Small Retail	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	26	25	\$1,326	25%	85%	\$5.10	0.00
Electric	Small Retail	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	31	20	\$469	45%	60%	\$1.65	0.00
Electric	Small Retail	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	31	20	\$522	45%	60%	\$1.84	0.00
Electric	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	19	20	\$82	45%	85%	\$0.49	0.00
Electric	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	19	20	\$91	45%	85%	\$0.53	0.00
Electric	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	255	25	\$4,921	15%	85%	\$1.96	0.00
Electric	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	47	25	\$1,518	15%	95%	\$3.25	0.00
Electric	Small Retail	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	338	25	\$12,099	10%	45%	\$3.65	0.00
Electric	Small Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	132	7	\$1,032	90%	95%	\$1.72	0.00
Electric	Small Retail	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	34	7	\$3,874	95%	95%	\$24.64	0.00
Electric	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	159	14	\$9,005	5.0%	95%	\$7.69	0.00
Electric	Small Retail	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	26	25	\$1,326	75%	85%	\$5.10	0.00
Electric	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	19	20	\$82	45%	85%	\$0.49	0.00
Electric	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	19	20	\$91	45%	85%	\$0.53	0.00
Electric	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	47	25	\$1,518	15%	95%	\$3.25	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	128	25	\$1,265	95%	85%	\$1.00	0.00
Electric	Small Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	523	10	\$71	100%	N/A	\$0.02	1,646,547
Electric	Small Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	523	10	\$71	100%	N/A	\$0.02	1,708,899
Electric	Small Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	523	10	\$71	100%	N/A	\$0.02	300,446
Electric	Small Retail	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	523	10	\$71	100%	N/A	\$0.02	350,197
Electric	Small Retail	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	17	15	\$34	95%	90%	\$0.26	0.00
Electric	Small Retail	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	427	20	\$582	55%	65%	\$0.15	0.00
Electric	Small Retail	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	92	7	\$26	65%	25%	\$0.06	0.00
Electric	Small Retail	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	17	15	\$34	95%	90%	\$0.26	0.00
Electric	Small Retail	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	427	20	\$582	55%	45%	\$0.15	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	37	9	\$14	25%	95%	\$0.07	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$5	5.0%	95%	\$0.04	323
Electric	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$5	5.0%	95%	\$0.04	343
Electric	Small Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	16	10	\$1,454	75%	95%	\$14.90	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	14	12	\$39	10%	35%	\$0.42	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	3	12	\$25	75%	75%	\$1.16	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	66	25	\$800	2.5%	95%	\$1.23	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	12	9	\$0.00	95%	75%	\$0.00	6,642
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	12	9	\$0.00	95%	75%	\$0.00	7,058
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	5	9	\$0.00	95%	50%	\$0.00	1,823
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	5	9	\$0.00	95%	50%	\$0.00	1,937
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	1	9	\$7	95%	25%	\$0.67	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	1	9	\$7	95%	25%	\$0.72	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	8	10	\$105	75%	85%	\$2.17	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	8	10	\$117	75%	85%	\$2.41	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	198	15	\$241	75%	N/A	\$0.21	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	195	15	\$144	75%	N/A	\$0.15	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	37	9	\$14	25%	95%	\$0.07	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$5	5.0%	95%	\$0.04	25
Electric	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$5	5.0%	95%	\$0.04	32
Electric	Small Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	16	10	\$1,454	75%	95%	\$15.02	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	14	12	\$39	10%	35%	\$0.42	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	65	25	\$639	2.5%	95%	\$0.99	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	12	9	\$0.00	95%	75%	\$0.00	535
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	12	9	\$0.00	95%	75%	\$0.00	669
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	5	9	\$0.00	95%	50%	\$0.00	147
Electric	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	5	9	\$0.00	95%	50%	\$0.00	183
Electric	Small Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	8	10	\$105	75%	85%	\$2.18	0.00
Electric	Small Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	8	10	\$117	75%	85%	\$2.43	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Water Heat GT 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	198	15	\$241	75%	N/A	\$0.21	0.00
Electric	Small Retail	Water Heat GT 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	195	15	\$144	75%	N/A	\$0.15	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	37	9	\$14	25%	95%	\$0.07	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$5	5.0%	95%	\$0.04	2,636
Electric	Small Retail	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	17	14	\$5	5.0%	95%	\$0.04	2,801
Electric	Small Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	17	10	\$1,454	25%	95%	\$14.25	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	14	12	\$39	75%	35%	\$0.42	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	3	12	\$25	75%	75%	\$1.11	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	69	25	\$800	2.5%	95%	\$1.18	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	13	9	\$0.00	95%	75%	\$0.00	56,627
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	13	9	\$0.00	95%	75%	\$0.00	60,172
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	5	9	\$0.00	95%	50%	\$0.00	15,544
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	5	9	\$0.00	95%	50%	\$0.00	16,517
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	2	9	\$7	95%	25%	\$0.65	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	2	9	\$7	95%	25%	\$0.69	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	8	10	\$105	75%	85%	\$2.07	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	8	10	\$117	75%	85%	\$2.31	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	183	15	\$1,241	75%	N/A	\$0.99	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	10	15	\$53	100%	N/A	\$0.66	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	37	9	\$14	25%	95%	\$0.07	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Small Retail	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$5	5.0%	95%	\$0.04	277
Electric	Small Retail	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	17	14	\$5	5.0%	95%	\$0.04	343
Electric	Small Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	16	10	\$1,454	25%	95%	\$14.69	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	14	12	\$39	75%	35%	\$0.42	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	67	25	\$639	2.5%	95%	\$0.97	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	12	9	\$0.00	95%	75%	\$0.00	5,861
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	12	9	\$0.00	95%	75%	\$0.00	7,225
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	5	9	\$0.00	95%	50%	\$0.00	1,609
Electric	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	5	9	\$0.00	95%	50%	\$0.00	1,983
Electric	Small Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	8	10	\$105	75%	85%	\$2.14	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	8	10	\$117	75%	85%	\$2.38	0.00
Electric	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	183	15	\$1,241	75%	N/A	\$0.99	14
Electric	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	183	15	\$1,241	75%	N/A	\$0.99	33
Electric	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	10	15	\$53	100%	N/A	\$0.66	-2.773416
Electric	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	10	15	\$53	100%	N/A	\$0.66	-25.340052
Electric	Warehouse	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	99	4	\$11	100%	N/A	\$0.04	195,546
Electric	Warehouse	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	99	4	\$11	100%	N/A	\$0.04	209,114
Electric	Warehouse	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	99	4	\$11	100%	N/A	\$0.04	57,455
Electric	Warehouse	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	99	4	\$11	100%	N/A	\$0.04	65,337
Electric	Warehouse	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	162	10	\$3,945	25%	95%	\$4.12	0.00
Electric	Warehouse	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	107	10	\$4,557	75%	95%	\$7.20	0.00
Electric	Warehouse	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	107	15	\$9,161	45%	90%	\$11.14	0.00
Electric	Warehouse	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	297	15	\$687	90%	90%	\$0.30	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	178	15	\$321	75%	90%	\$0.24	0.00
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	451	20	\$2,938	100%	N/A	\$0.73	0.00
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - High Efficiency	High Efficiency - 0.71 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	150	20	\$979	100%	N/A	\$0.73	0.00
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	Existing	335	20	\$2,184	100%	N/A	\$0.73	0.00
Electric	Warehouse	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	215	15	\$2,341	80%	95%	\$1.42	0.00
Electric	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	172	7	\$488	10%	95%	\$0.63	0.00
Electric	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	301	15	\$43	65%	35%	\$0.02	0.00
Electric	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	301	15	\$43	65%	35%	\$0.02	140,182
Electric	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	86	13	\$353	75%	75%	\$0.59	0.00
Electric	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	215	40	\$67,768	2.0%	100%	\$27.97	0.00
Electric	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	107	12	\$47	10%	60%	\$0.07	0.00
Electric	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	107	12	\$47	10%	60%	\$0.07	10,504
Electric	Warehouse	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8	25	\$3,523	45%	65%	\$44.78	0.00
Electric	Warehouse	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.74	25	\$1,694	25%	85%	\$231.04	0.00
Electric	Warehouse	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	268	7	\$1,318	90%	95%	\$1.09	0.00
Electric	Warehouse	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	215	3	\$0.00	95%	20%	\$0.00	0.00
Electric	Warehouse	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	215	3	\$0.00	95%	20%	\$0.00	106,216
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	118	10	\$416	35%	70%	\$0.60	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	118	10	\$416	35%	70%	\$0.60	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	188	10	\$416	35%	70%	\$0.37	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	188	10	\$416	35%	70%	\$0.37	0.00
Electric	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	271	25	\$4	15%	90%	\$0.00	0.00
Electric	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	271	25	\$4	15%	90%	\$0.00	79,675
Electric	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	247	25	\$65	15%	25%	\$0.03	0.00
Electric	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	247	25	\$65	15%	25%	\$0.03	15,176
Electric	Warehouse	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	134	10	\$3,551	25%	95%	\$4.48	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	89	10	\$4,557	0.0%	0%	\$8.70	0.00
Electric	Warehouse	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	178	15	\$321	95%	90%	\$0.24	0.00
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	451	20	\$2,645	100%	N/A	\$0.66	0.00
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - High Efficiency	High Efficiency - 0.71 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	150	20	\$881	100%	N/A	\$0.66	0.00
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	335	20	\$1,966	100%	N/A	\$0.66	1
Electric	Warehouse	Cooling Chillers	Chillers < 150 tons (screw) - Premium Efficiency	Premium Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.775 kW/ton (full load)	Per Building	New	335	20	\$1,966	100%	N/A	\$0.66	0.00
Electric	Warehouse	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	58	7	\$4,950	95%	95%	\$18.79	0.00
Electric	Warehouse	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	178	15	\$2,341	80%	95%	\$1.72	0.00
Electric	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	142	7	\$438	10%	95%	\$0.68	0.00
Electric	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	178	40	\$67,768	2.0%	100%	\$33.78	0.00
Electric	Warehouse	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.61	25	\$1,694	75%	85%	\$278.99	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	118	10	\$416	0.0%	0%	\$0.60	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	118	10	\$416	0.0%	0%	\$0.60	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	188	10	\$416	0.0%	0%	\$0.37	0.00
Electric	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	188	10	\$416	0.0%	0%	\$0.37	0.00
Electric	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	224	25	\$4	80%	90%	\$0.00	0.00
Electric	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	224	25	\$4	80%	90%	\$0.00	46,012
Electric	Warehouse	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	226	15	\$2,341	80%	95%	\$1.35	0.00
Electric	Warehouse	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	238	15	\$2,341	80%	95%	\$1.28	0.00
Electric	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	64	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	165	15	\$454	100%	N/A	\$0.36	0.00
Electric	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	339	10	\$2,844	10%	40%	\$1.42	0.00
Electric	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	357	10	\$2,844	10%	40%	\$1.35	0.00
Electric	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	56	18	\$1,605	45%	85%	\$3.36	0.00
Electric	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	59	18	\$1,605	45%	85%	\$3.18	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	1,368	15	\$-9535.926	35%	N/A	\$-1.17	880,018
Electric	Warehouse	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	1,368	15	\$-9535.926	35%	N/A	\$-1.17	1,730,069
Electric	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	226	40	\$67,768	2.0%	100%	\$26.58	0.00
Electric	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	238	40	\$67,768	2.0%	100%	\$25.21	0.00
Electric	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	113	12	\$47	10%	60%	\$0.06	49,494
Electric	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	119	12	\$47	10%	60%	\$0.06	26,049
Electric	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8	25	\$3,523	45%	65%	\$42.54	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8	25	\$3,523	45%	65%	\$40.36	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.78	25	\$1,694	25%	85%	\$219.51	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.82	25	\$1,694	25%	85%	\$208.24	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	67	20	\$1,739	45%	60%	\$2.87	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	71	20	\$1,739	45%	60%	\$2.73	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	40	20	\$305	45%	85%	\$0.84	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	42	20	\$305	45%	85%	\$0.80	0.00
Electric	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	282	7	\$1,318	90%	95%	\$1.03	0.00
Electric	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	298	7	\$1,318	90%	95%	\$0.98	0.00
Electric	Warehouse	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	226	5	\$802	95%	50%	\$1.03	0.00
Electric	Warehouse	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	238	5	\$802	95%	50%	\$0.98	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	118	10	\$416	35%	70%	\$0.60	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	118	10	\$416	35%	70%	\$0.60	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	188	10	\$416	35%	70%	\$0.37	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	188	10	\$416	35%	70%	\$0.37	0.00
Electric	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	285	25	\$4	15%	90%	\$0.00	363,453
Electric	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	301	25	\$4	15%	90%	\$0.00	191,287
Electric	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	260	25	\$65	15%	25%	\$0.03	71,508
Electric	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	274	25	\$65	15%	25%	\$0.02	37,635
Electric	Warehouse	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	68	7	\$4,950	95%	95%	\$15.97	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	72	7	\$4,950	95%	95%	\$15.21	0.00
Electric	Warehouse	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	209	15	\$2,341	80%	95%	\$1.46	0.00
Electric	Warehouse	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	220	15	\$2,341	80%	95%	\$1.39	0.00
Electric	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	64	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	165	15	\$363	100%	N/A	\$0.29	0.00
Electric	Warehouse	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	1,368	15	-\$6952.248	35%	N/A	-\$0.87	150,357
Electric	Warehouse	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	1,368	15	-\$6952.248	35%	N/A	-\$0.87	291,753
Electric	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	209	40	\$67,768	2.0%	100%	\$28.70	0.00
Electric	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	220	40	\$67,768	2.0%	100%	\$27.33	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.72	25	\$1,694	75%	85%	\$237.02	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.76	25	\$1,694	75%	85%	\$225.75	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	37	20	\$305	45%	85%	\$0.91	0.00
Electric	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	39	20	\$305	45%	85%	\$0.86	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	118	10	\$416	0.0%	0%	\$0.60	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	118	10	\$416	0.0%	0%	\$0.60	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	188	10	\$416	0.0%	0%	\$0.37	0.00
Electric	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	188	10	\$416	0.0%	0%	\$0.37	0.00
Electric	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	264	25	\$4	80%	90%	\$0.00	131,995
Electric	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	277	25	\$4	80%	90%	\$0.00	69,707
Electric	Warehouse	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	4	6	\$0.00	100%	N/A	\$0.00	80,448
Electric	Warehouse	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	4	6	\$0.00	100%	N/A	\$0.00	83,344
Electric	Warehouse	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	4	6	\$0.00	100%	N/A	\$0.00	12,436
Electric	Warehouse	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	4	6	\$0.00	100%	N/A	\$0.00	14,314
Electric	Warehouse	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	13	4	\$14	100%	N/A	\$0.39	0.00
Electric	Warehouse	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	13	4	\$14	100%	N/A	\$0.39	6
Electric	Warehouse	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	13	4	\$14	100%	N/A	\$0.39	9
Electric	Warehouse	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	0.97	20	\$0.66	100%	N/A	\$0.08	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	2	20	\$0.66	100%	N/A	\$0.03	13,500
Electric	Warehouse	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	2	20	\$0.66	100%	N/A	\$0.03	-241.610436
Electric	Warehouse	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	18	20	\$2	8.8%	100%	\$0.02	34,362
Electric	Warehouse	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	18	20	\$2	8.8%	100%	\$0.02	34,362
Electric	Warehouse	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	21	20	\$2	8.8%	100%	\$0.01	36,838
Electric	Warehouse	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	21	20	\$2	8.8%	100%	\$0.01	36,838
Electric	Warehouse	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	0.97	20	\$0.66	100%	N/A	\$0.08	0.00
Electric	Warehouse	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	2	20	\$0.66	100%	N/A	\$0.03	4,684
Electric	Warehouse	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	2	20	\$0.66	100%	N/A	\$0.03	-31.372188
Electric	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	118	15	\$1,695	100%	N/A	\$1.87	0.00
Electric	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	249	15	\$3,390	100%	N/A	\$1.78	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	65	15	\$2,341	80%	95%	\$4.66	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	65	15	\$2,341	80%	95%	\$4.66	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	124	15	\$2,341	80%	95%	\$2.47	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	124	15	\$2,341	80%	95%	\$2.47	0.00
Electric	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	76	18	\$1,605	45%	85%	\$2.49	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	270	14	\$6,067	5.0%	95%	\$3.05	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	270	14	\$6,067	5.0%	95%	\$3.05	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	358	14	\$6,067	5.0%	95%	\$2.31	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	358	14	\$6,067	5.0%	95%	\$2.31	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	65	40	\$67,768	2.0%	100%	\$91.49	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	65	40	\$67,768	2.0%	100%	\$91.49	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	124	40	\$67,768	2.0%	100%	\$48.48	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	124	40	\$67,768	2.0%	100%	\$48.48	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	862	30	\$494	5.0%	N/A	\$10.88	0.00
Electric	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	228	12	\$47	10%	60%	\$0.03	11,593
Electric	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	228	12	\$47	10%	60%	\$0.03	29,816
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	343	25	\$3,523	45%	65%	\$1.05	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	343	25	\$3,523	45%	65%	\$1.05	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	450	25	\$3,523	45%	65%	\$0.80	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	450	25	\$3,523	45%	65%	\$0.80	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	45	25	\$1,694	25%	85%	\$3.82	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	45	25	\$1,694	25%	85%	\$3.82	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	59	25	\$1,694	25%	85%	\$2.90	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	59	25	\$1,694	25%	85%	\$2.90	0.00
Electric	Warehouse	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	91	20	\$1,739	45%	60%	\$2.14	0.00
Electric	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	54	20	\$305	45%	85%	\$0.62	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	662	25	\$6,288	15%	85%	\$0.97	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	662	25	\$6,288	15%	85%	\$0.97	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	938	25	\$6,288	15%	85%	\$0.68	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	938	25	\$6,288	15%	85%	\$0.68	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	93	25	\$1,940	15%	95%	\$2.12	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	93	25	\$1,940	15%	95%	\$2.12	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	130	25	\$1,940	15%	95%	\$1.51	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	130	25	\$1,940	15%	95%	\$1.51	0.00
Electric	Warehouse	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	485	25	\$15,459	10%	45%	\$3.24	0.00
Electric	Warehouse	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	380	7	\$1,318	90%	95%	\$0.77	0.00
Electric	Warehouse	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	304	3	\$802	95%	50%	\$1.20	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	25	10	\$416	35%	70%	\$2.76	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	25	10	\$416	35%	70%	\$2.76	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	76	10	\$416	35%	70%	\$0.92	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	76	10	\$416	35%	70%	\$0.92	0.00
Electric	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	80	25	\$4	15%	90%	\$0.01	11,612
Electric	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	80	25	\$4	15%	90%	\$0.01	29,866

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	128	25	\$65	15%	25%	\$0.05	4,047
Electric	Warehouse	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	128	25	\$65	15%	25%	\$0.05	10,409
Electric	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	118	15	\$1,356	100%	N/A	\$1.50	0.00
Electric	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	249	15	\$2,712	100%	N/A	\$1.42	18
Electric	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	249	15	\$2,712	100%	N/A	\$1.42	26
Electric	Warehouse	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	92	7	\$4,950	95%	95%	\$11.90	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	60	15	\$2,341	80%	95%	\$5.04	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	60	15	\$2,341	80%	95%	\$5.04	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	114	15	\$2,341	80%	95%	\$2.67	0.00
Electric	Warehouse	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	114	15	\$2,341	80%	95%	\$2.67	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	250	14	\$6,067	5.0%	95%	\$3.31	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	250	14	\$6,067	5.0%	95%	\$3.31	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	330	14	\$6,067	5.0%	95%	\$2.50	0.00
Electric	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	330	14	\$6,067	5.0%	95%	\$2.50	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	60	40	\$67,768	2.0%	100%	\$99.08	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	60	40	\$67,768	2.0%	100%	\$99.08	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	114	40	\$67,768	2.0%	100%	\$52.50	0.00
Electric	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	114	40	\$67,768	2.0%	100%	\$52.50	0.00
Electric	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	862	30	\$51,622	5.0%	N/A	\$5.52	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	41	25	\$1,694	75%	85%	\$4.14	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	41	25	\$1,694	75%	85%	\$4.14	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	54	25	\$1,694	75%	85%	\$3.15	0.00
Electric	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	54	25	\$1,694	75%	85%	\$3.15	0.00
Electric	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	50	20	\$305	45%	85%	\$0.68	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	86	25	\$1,940	15%	95%	\$2.29	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	86	25	\$1,940	15%	95%	\$2.29	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	120	25	\$1,940	15%	95%	\$1.63	0.00
Electric	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	120	25	\$1,940	15%	95%	\$1.63	0.00
Electric	Warehouse	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	41	25	\$1,616	95%	85%	\$3.97	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	New	25	10	\$416	0.0%	0%	\$2.76	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	New	25	10	\$416	0.0%	0%	\$2.76	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	New	76	10	\$416	0.0%	0%	\$0.92	0.00
Electric	Warehouse	Heat Pump	Window Film	Window Film	No Film	Per Building	New	76	10	\$416	0.0%	0%	\$0.92	0.00
Electric	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	73	25	\$4	80%	90%	\$0.01	6,928
Electric	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	73	25	\$4	80%	90%	\$0.01	15,220
Electric	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	405	8	\$556	75%	70%	\$0.27	0.00
Electric	Warehouse	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	337	15	\$681	62%	90%	\$0.26	0.00
Electric	Warehouse	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	203	8	\$1,829	90%	90%	\$1.80	0.00
Electric	Warehouse	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	1,218	17	\$828	75%	50%	\$0.08	0.00
Electric	Warehouse	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	140	8	\$129	25%	25%	\$0.18	0.00
Electric	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	405	8	\$556	75%	70%	\$0.27	0.00
Electric	Warehouse	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	337	15	\$681	62%	90%	\$0.26	0.00
Electric	Warehouse	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	203	8	\$1,829	90%	90%	\$1.80	0.00
Electric	Warehouse	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	1,218	17	\$828	75%	50%	\$0.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	225	10	\$832	0.5%	75%	\$0.63	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	1,262	8	\$6,542	10%	95%	\$1.04	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	946	8	\$4,907	10%	95%	\$1.04	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,544	13	\$11,593	50%	N/A	\$1.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,544	13	\$11,593	50%	N/A	\$1.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,547	13	\$11,618	50%	N/A	\$1.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,547	13	\$11,618	50%	N/A	\$1.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	345	13	\$224	100%	N/A	\$0.13	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	345	13	\$224	100%	N/A	\$0.13	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	346	13	\$223	100%	N/A	\$0.12	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	346	13	\$223	100%	N/A	\$0.12	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	636	13	\$1,271	100%	N/A	\$0.30	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	636	13	\$1,271	100%	N/A	\$0.30	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	719	13	\$1,269	100%	N/A	\$0.27	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	719	13	\$1,269	100%	N/A	\$0.27	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	635	13	\$462	100%	N/A	\$0.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	635	13	\$462	100%	N/A	\$0.08	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	720	13	\$463	100%	N/A	\$0.07	8,458,649
Electric	Warehouse	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	720	13	\$463	100%	N/A	\$0.07	8,458,649
Electric	Warehouse	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,222	8	\$1,829	75%	90%	\$0.30	0.00
Electric	Warehouse	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	845	8	\$129	5.0%	25%	\$0.03	198,690
Electric	Warehouse	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	845	8	\$129	5.0%	25%	\$0.03	200,631
Electric	Warehouse	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,703	15	\$1,178	100%	N/A	\$0.11	0.00
Electric	Warehouse	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	2,224	15	\$4,237	95%	N/A	\$0.25	0.00
Electric	Warehouse	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,884	22	\$29,929	50%	N/A	\$1.67	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,146	15	\$231	25%	N/A	\$-0.00	1,019,727
Electric	Warehouse	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,146	15	\$231	25%	N/A	\$-0.00	1,057,969
Electric	Warehouse	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	516	15	\$19,002	100%	N/A	\$4.66	0.00
Electric	Warehouse	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,054	8	\$1,829	75%	90%	\$0.35	0.00
Electric	Warehouse	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	729	8	\$129	10%	25%	\$0.04	380,197
Electric	Warehouse	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	729	8	\$129	10%	25%	\$0.04	408,975
Electric	Warehouse	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	49	11	\$19	95%	65%	\$0.06	628,565
Electric	Warehouse	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	49	11	\$19	95%	65%	\$0.06	676,141
Electric	Warehouse	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	9	13	\$8	95%	95%	\$0.12	0.00
Electric	Warehouse	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	367	10	\$832	0.5%	75%	\$0.38	0.00
Electric	Warehouse	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	931	8	\$6,542	10%	95%	\$1.40	0.00
Electric	Warehouse	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	698	8	\$4,907	10%	95%	\$1.40	0.00
Electric	Warehouse	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	9	13	\$8	95%	95%	\$0.12	0.00
Electric	Warehouse	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,022	13	\$6,180	100%	N/A	\$0.44	0.00
Electric	Warehouse	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,022	13	\$6,180	100%	N/A	\$0.44	0.00
Electric	Warehouse	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,389	13	\$4,943	100%	N/A	\$0.30	0.00
Electric	Warehouse	Lighting Interior Other	Lighting Package - High Efficiency	13% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	2,389	13	\$4,943	100%	N/A	\$0.30	0.00
Electric	Warehouse	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,994	8	\$1,829	75%	90%	\$0.18	0.00
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,575	4	\$28	85%	N/A	\$-0.02	0.00
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,711	4	\$45	85%	N/A	\$-0.02	0.00
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	2,989	1	\$8	100%	N/A	\$0.01	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,775	1	\$14	100%	N/A	\$0.01	0.00
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,602	12	\$728	85%	N/A	\$0.01	6,806,847
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,602	12	\$728	85%	N/A	\$0.01	6,806,847
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,755	12	\$1,163	85%	N/A	\$0.01	10,483,922
Electric	Warehouse	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,755	12	\$1,163	85%	N/A	\$0.01	10,483,922
Electric	Warehouse	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	489	8	\$1,829	75%	90%	\$0.75	0.00
Electric	Warehouse	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	338	8	\$129	1.0%	25%	\$0.08	0.00
Electric	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	3	7	\$0.66	10%	90%	\$0.05	5,493
Electric	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	3	7	\$0.66	10%	90%	\$0.05	6,049
Electric	Warehouse	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	7	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	153	10	\$0.66	95%	75%	\$0.00	2,640,009
Electric	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	153	10	\$0.66	95%	75%	\$0.00	2,907,289
Electric	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	66	4	\$13	60%	90%	\$0.07	0.00
Electric	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	3	7	\$0.66	10%	90%	\$0.05	631
Electric	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	3	7	\$0.66	10%	90%	\$0.05	736
Electric	Warehouse	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	7	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	153	10	\$0.66	95%	75%	\$0.00	303,333
Electric	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	153	10	\$0.66	95%	75%	\$0.00	353,896
Electric	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	66	4	\$13	60%	90%	\$0.07	0.00
Electric	Warehouse	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	12	6	\$15	100%	N/A	\$0.31	0.00
Electric	Warehouse	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	12	6	\$15	100%	N/A	\$0.31	8
Electric	Warehouse	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	12	6	\$15	100%	N/A	\$0.31	12
Electric	Warehouse	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	28	6	\$4	100%	N/A	\$0.04	4,474
Electric	Warehouse	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	28	6	\$4	100%	N/A	\$0.04	7,919

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	28	6	\$4	100%	N/A	\$0.04	0.00
Electric	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-Ins	Per Building	Existing	2	4	\$2	95%	80%	\$0.26	0.00
Electric	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	1	15	\$2	10%	95%	\$0.16	0.00
Electric	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-Ins	Per Building	New	2	4	\$2	95%	80%	\$0.26	0.00
Electric	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	1	15	\$2	10%	95%	\$0.16	0.00
Electric	Warehouse	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	32	20	\$89	100%	N/A	\$0.31	0.00
Electric	Warehouse	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	36	20	\$120	100%	N/A	\$0.37	0.00
Electric	Warehouse	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	28	20	\$7	100%	N/A	\$0.03	61,813
Electric	Warehouse	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	28	20	\$7	100%	N/A	\$0.03	65,595
Electric	Warehouse	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	9	20	\$3	100%	N/A	\$0.04	0.00
Electric	Warehouse	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	225	20	\$24	8.8%	100%	\$0.01	315,536
Electric	Warehouse	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	225	20	\$24	8.8%	100%	\$0.01	315,536
Electric	Warehouse	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	230	20	\$22	8.8%	100%	\$0.01	354,567
Electric	Warehouse	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	230	20	\$22	8.8%	100%	\$0.01	354,567
Electric	Warehouse	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	32	20	\$89	100%	N/A	\$0.31	0.00
Electric	Warehouse	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	36	20	\$120	100%	N/A	\$0.37	0.00
Electric	Warehouse	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	28	20	\$7	100%	N/A	\$0.03	28,071
Electric	Warehouse	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	28	20	\$7	100%	N/A	\$0.03	29,126
Electric	Warehouse	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	9	20	\$3	100%	N/A	\$0.04	0.00
Electric	Warehouse	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	57	15	\$2,341	80%	95%	\$5.31	0.00
Electric	Warehouse	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	73	15	\$2,341	80%	95%	\$4.17	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	105	15	\$11,806	2.5%	65%	\$14.62	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	134	15	\$11,806	2.5%	65%	\$11.48	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	105	15	\$9,752	2.5%	65%	\$12.07	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	134	15	\$9,752	2.5%	65%	\$9.48	0.00
Electric	Warehouse	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	57	40	\$67,768	2.0%	100%	\$104.41	0.00
Electric	Warehouse	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	73	40	\$67,768	2.0%	100%	\$82.00	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	28	12	\$47	10%	60%	\$0.25	8,240
Electric	Warehouse	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	36	12	\$47	10%	60%	\$0.19	0.00
Electric	Warehouse	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2	25	\$3,523	45%	65%	\$167.14	0.00
Electric	Warehouse	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2	25	\$3,523	45%	65%	\$131.27	0.00
Electric	Warehouse	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.20	25	\$1,694	25%	85%	\$862.37	0.00
Electric	Warehouse	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.25	25	\$1,694	25%	85%	\$677.33	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	53	9	\$50	100%	N/A	\$0.17	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	53	9	\$50	100%	N/A	\$0.17	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	68	9	\$50	100%	N/A	\$0.13	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	68	9	\$50	100%	N/A	\$0.13	0.00
Electric	Warehouse	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	72	25	\$4	15%	90%	\$0.01	60,251
Electric	Warehouse	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	92	25	\$4	15%	90%	\$0.01	24,624
Electric	Warehouse	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	66	25	\$65	15%	25%	\$0.10	11,818
Electric	Warehouse	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	84	25	\$65	15%	25%	\$0.08	4,844
Electric	Warehouse	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	57	15	\$2,341	80%	95%	\$5.31	0.00
Electric	Warehouse	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	73	15	\$2,341	80%	95%	\$4.17	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	105	15	\$9,445	2.5%	65%	\$11.69	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	134	15	\$9,445	2.5%	65%	\$9.18	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	105	15	\$7,801	2.5%	65%	\$9.66	0.00
Electric	Warehouse	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	134	15	\$7,801	2.5%	65%	\$7.59	0.00
Electric	Warehouse	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	57	40	\$67,768	2.0%	100%	\$104.41	0.00
Electric	Warehouse	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	73	40	\$67,768	2.0%	100%	\$82.00	0.00
Electric	Warehouse	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.20	25	\$1,694	75%	85%	\$862.37	0.00
Electric	Warehouse	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.25	25	\$1,694	75%	85%	\$677.33	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	53	9	\$50	100%	N/A	\$0.17	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	53	9	\$50	100%	N/A	\$0.17	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	68	9	\$50	100%	N/A	\$0.13	0.00
Electric	Warehouse	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	68	9	\$50	100%	N/A	\$0.13	0.00
Electric	Warehouse	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	72	25	\$4	80%	90%	\$0.01	31,643
Electric	Warehouse	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	92	25	\$4	80%	90%	\$0.01	15,275
Electric	Warehouse	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	347	15	\$9,756	2.5%	65%	\$3.67	0.00
Electric	Warehouse	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	56	12	\$47	10%	60%	\$0.13	0.00
Electric	Warehouse	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	106	25	\$3,523	45%	65%	\$3.38	0.00
Electric	Warehouse	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	13	25	\$1,694	25%	85%	\$12.36	0.00
Electric	Warehouse	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	195	25	\$6,288	15%	85%	\$3.27	0.00
Electric	Warehouse	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	25	25	\$1,940	15%	95%	\$7.88	0.00
Electric	Warehouse	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	67	25	\$15,459	10%	45%	\$23.20	0.00
Electric	Warehouse	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	67	25	\$15,459	10%	45%	\$23.20	0.00
Electric	Warehouse	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	178	25	\$15,459	10%	45%	\$8.84	0.00
Electric	Warehouse	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	178	25	\$15,459	10%	45%	\$8.84	0.00
Electric	Warehouse	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	347	15	\$6,690	2.5%	65%	\$2.52	0.00
Electric	Warehouse	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	13	25	\$1,694	75%	85%	\$12.36	0.00
Electric	Warehouse	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	25	25	\$1,940	15%	95%	\$7.88	0.00
Electric	Warehouse	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	67	25	\$1,616	95%	85%	\$2.43	0.00
Electric	Warehouse	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	36	9	\$4	100%	N/A	\$0.02	447,703
Electric	Warehouse	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	36	9	\$4	100%	N/A	\$0.02	461,126
Electric	Warehouse	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	36	9	\$4	100%	N/A	\$0.02	59,085
Electric	Warehouse	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	36	9	\$4	100%	N/A	\$0.02	67,861
Electric	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	24	18	\$1,605	45%	85%	\$7.72	0.00
Electric	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	147	14	\$6,067	5.0%	95%	\$5.60	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	98	12	\$47	10%	60%	\$0.07	0.00
Electric	Warehouse	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	186	25	\$3,523	45%	65%	\$1.92	0.00
Electric	Warehouse	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	24	25	\$1,694	25%	85%	\$7.04	0.00
Electric	Warehouse	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	29	20	\$1,739	45%	60%	\$6.61	0.00
Electric	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	17	20	\$305	45%	85%	\$1.93	0.00
Electric	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	343	25	\$6,288	15%	85%	\$1.86	0.00
Electric	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	44	25	\$1,940	15%	95%	\$4.49	0.00
Electric	Warehouse	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	312	25	\$15,459	10%	45%	\$5.03	0.00
Electric	Warehouse	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	122	7	\$1,318	90%	95%	\$2.38	0.00
Electric	Warehouse	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	32	7	\$4,950	95%	95%	\$34.02	0.00
Electric	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	147	14	\$6,067	5.0%	95%	\$5.60	0.00
Electric	Warehouse	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	24	25	\$1,694	75%	85%	\$7.04	0.00
Electric	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	17	20	\$305	45%	85%	\$1.93	0.00
Electric	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	44	25	\$1,940	15%	95%	\$4.49	0.00
Electric	Warehouse	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	119	25	\$1,616	95%	85%	\$1.38	0.00
Electric	Warehouse	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	123	10	\$16	100%	N/A	\$0.02	838,304
Electric	Warehouse	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	123	10	\$16	100%	N/A	\$0.02	855,388
Electric	Warehouse	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	123	10	\$16	100%	N/A	\$0.02	152,965
Electric	Warehouse	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	123	10	\$16	100%	N/A	\$0.02	175,291
Electric	Warehouse	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	21	15	\$44	95%	90%	\$0.27	0.00
Electric	Warehouse	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	537	20	\$745	55%	65%	\$0.16	0.00
Electric	Warehouse	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	118	7	\$33	65%	25%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	21	15	\$44	95%	90%	\$0.27	0.00
Electric	Warehouse	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	537	20	\$745	55%	45%	\$0.16	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	11	10	\$1,858	55%	95%	\$28.14	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$4	75%	35%	\$0.45	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	2	12	\$25	75%	75%	\$1.70	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	44	25	\$799	2.5%	95%	\$1.81	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	8	9	\$0.00	95%	75%	\$0.00	19,359
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	8	9	\$0.00	95%	75%	\$0.00	20,922
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	3	9	\$0.00	95%	50%	\$0.00	5,314
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	3	9	\$0.00	95%	50%	\$0.00	5,743
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	1	9	\$5	95%	25%	\$0.73	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	111	10	\$12	95%	85%	\$0.02	235,756
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	111	10	\$12	95%	85%	\$0.02	254,792
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	90	10	\$28	95%	25%	\$0.05	55,922
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	90	10	\$28	95%	25%	\$0.05	60,438
Electric	Warehouse	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	5	10	\$78	75%	95%	\$2.37	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	134	15	\$242	75%	N/A	\$0.32	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	132	15	\$144	75%	N/A	\$0.22	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	11	10	\$1,858	55%	95%	\$28.37	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$4	75%	35%	\$0.45	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	44	25	\$640	2.5%	95%	\$1.46	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	8	9	\$0.00	95%	75%	\$0.00	1,588
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	8	9	\$0.00	95%	75%	\$0.00	1,951
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	3	9	\$0.00	95%	50%	\$0.00	436

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	3	9	\$0.00	95%	50%	\$0.00	535
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	111	10	\$12	95%	85%	\$0.02	19,506
Electric	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	111	10	\$12	95%	85%	\$0.02	23,961
Electric	Warehouse	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	5	10	\$78	75%	95%	\$2.39	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 2.0	Per Building	New	134	15	\$242	75%	N/A	\$0.32	0.00
Electric	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	132	15	\$144	75%	N/A	\$0.22	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	11	10	\$1,858	25%	95%	\$26.92	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$4	75%	35%	\$0.45	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	2	12	\$25	75%	75%	\$1.63	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	46	25	\$799	2.5%	95%	\$1.74	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	9	9	\$0.00	95%	75%	\$0.00	45,839
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	9	9	\$0.00	95%	75%	\$0.00	49,543
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	3	9	\$0.00	95%	50%	\$0.00	12,583
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	3	9	\$0.00	95%	50%	\$0.00	13,600
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	1	9	\$5	95%	25%	\$0.70	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	111	10	\$12	95%	85%	\$0.02	534,167
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	111	10	\$12	95%	85%	\$0.02	577,332
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	90	10	\$28	95%	25%	\$0.05	126,708
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	90	10	\$28	95%	25%	\$0.05	136,947
Electric	Warehouse	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	5	10	\$78	75%	95%	\$2.27	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	123	15	\$1,241	75%	N/A	\$1.47	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	7	15	\$54	100%	N/A	\$0.98	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	11	10	\$1,858	25%	95%	\$27.76	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$4	75%	35%	\$0.45	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Warehouse	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	45	25	\$640	2.5%	95%	\$1.43	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	8	9	\$0.00	95%	75%	\$0.00	4,826
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	8	9	\$0.00	95%	75%	\$0.00	5,849
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	3	9	\$0.00	95%	50%	\$0.00	1,324
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	3	9	\$0.00	95%	50%	\$0.00	1,605
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	111	10	\$12	95%	85%	\$0.02	57,974
Electric	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	111	10	\$12	95%	85%	\$0.02	70,266
Electric	Warehouse	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	5	10	\$78	75%	95%	\$2.34	0.00
Electric	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	123	15	\$1,241	75%	N/A	\$1.47	6
Electric	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	123	15	\$1,241	75%	N/A	\$1.47	14
Electric	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	7	15	\$54	100%	N/A	\$0.98	-1.250052
Electric	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	7	15	\$54	100%	N/A	\$0.98	-11.009568

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	Existing	10	19	\$125	100%	N/A	\$1.36	0.00
Gas	Multifamily	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	New	10	19	\$125	100%	N/A	\$1.36	0.00
Gas	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Dryer - CEF/EF 3.54/3.63	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	Existing	5	11	\$747	100%	N/A	\$23.67	0.00
Gas	Multifamily	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.30/3.38	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	Existing	3	11	\$101	100%	N/A	\$4.17	-8.0182229
Gas	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Dryer - CEF/EF 3.54/3.63	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	New	5	11	\$747	100%	N/A	\$23.67	0.00
Gas	Multifamily	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.30/3.38	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	New	3	11	\$101	100%	N/A	\$4.17	-0.0007411
Gas	Multifamily	Heat Central Boiler	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	67	18	\$1,585	2.5%	95%	\$2.76	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Advanced Efficiency	Advanced Efficiency Boiler - 98% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	Existing	89	20	\$3,333	100%	N/A	\$4.17	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Controls	Boiler Controls	No Boiler Control	Savings Per Building	Existing	28	20	\$378	80%	95%	\$1.50	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - High Efficiency	High Efficiency Boiler - 90% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	Existing	48	20	\$2,038	100%	N/A	\$4.68	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Pipe Insulation	R-6 Pipe Insulation	No Insulation	Savings Per Building	Existing	6	15	\$44	95%	30%	\$0.93	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Premium Efficiency	Premium Efficiency Boiler - 94% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	Existing	70	20	\$2,457	100%	N/A	\$3.93	0.00
Gas	Multifamily	Heat Central Boiler	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	42	40	\$1,074	25%	62%	\$2.22	0.00
Gas	Multifamily	Heat Central Boiler	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	9	40	\$97	100%	62%	\$0.95	0.00
Gas	Multifamily	Heat Central Boiler	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	5	40	\$26	100%	62%	\$0.43	0.00
Gas	Multifamily	Heat Central Boiler	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	105	18	\$1,162	25%	62%	\$1.30	0.00
Gas	Multifamily	Heat Central Boiler	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	58	40	\$765	25%	62%	\$1.17	0.00
Gas	Multifamily	Heat Central Boiler	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	13	11	\$191	75%	92%	\$2.21	0.00
Gas	Multifamily	Heat Central Boiler	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	Existing	50	20	\$-212,5446	5.0%	95%	\$-0.47	0.00
Gas	Multifamily	Heat Central Boiler	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	19	11	\$33	100%	94%	\$0.27	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Heat Central Boiler	Quality Installation - Boiler	Quality Installation of Boiler - Commissioning, Controls, and Proper Sizing	Standard Installation of Boiler	Savings Per Building	Existing	28	20	\$225	95%	0%	\$0.89	0.00
Gas	Multifamily	Heat Central Boiler	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	11	40	\$108	0.0%	95%	\$0.86	0.00
Gas	Multifamily	Heat Central Boiler	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	60	40	\$611	50%	62%	\$0.89	0.00
Gas	Multifamily	Heat Central Boiler	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	19	11	\$172	10%	100%	\$1.38	0.00
Gas	Multifamily	Heat Central Boiler	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	30	25	\$3,341	95%	50%	\$11.28	0.00
Gas	Multifamily	Heat Central Boiler	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	36	25	\$5,820	95%	100%	\$16.14	0.00
Gas	Multifamily	Heat Central Boiler	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	55	18	\$1,585	20%	95%	\$3.36	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Advanced Efficiency	Advanced Efficiency Boiler - 98% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	New	73	20	\$3,333	100%	N/A	\$5.07	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Controls	Boiler Controls	No Boiler Control	Savings Per Building	New	23	20	\$378	0.0%	95%	\$1.82	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - High Efficiency	High Efficiency Boiler - 90% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	New	40	20	\$2,038	100%	N/A	\$5.69	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Pipe Insulation	R-6 Pipe Insulation	No Insulation	Savings Per Building	New	6	15	\$44	0.0%	30%	\$0.93	0.00
Gas	Multifamily	Heat Central Boiler	Boiler - Premium Efficiency	Premium Efficiency Boiler - 94% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	New	57	20	\$2,457	100%	N/A	\$4.78	0.00
Gas	Multifamily	Heat Central Boiler	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	5	40	\$218	75%	62%	\$3.40	0.00
Gas	Multifamily	Heat Central Boiler	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	60	40	\$2,145	5.0%	**%	\$3.15	0.00
Gas	Multifamily	Heat Central Boiler	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	8	40	\$97	100%	62%	\$0.97	0.00
Gas	Multifamily	Heat Central Boiler	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	5	40	\$26	100%	62%	\$0.44	0.00
Gas	Multifamily	Heat Central Boiler	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	3	40	\$211	75%	62%	\$5.60	0.00
Gas	Multifamily	Heat Central Boiler	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	23	40	\$14,737	10%	**%	\$56.21	0.00
Gas	Multifamily	Heat Central Boiler	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	42	20	\$495	0.0%	95%	\$1.30	0.00
Gas	Multifamily	Heat Central Boiler	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	New	41	20	\$-192.9165	10%	95%	\$-0.52	0.00
Gas	Multifamily	Heat Central Boiler	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	26	40	\$358	20%	75%	\$1.18	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Heat Central Boiler	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	10	40	\$102	75%	90%	\$0.88	0.00
Gas	Multifamily	Heat Central Boiler	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	16	11	\$172	10%	100%	\$1.68	0.00
Gas	Multifamily	Heat Central Boiler	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	7	25	\$1,043	95%	50%	\$13.29	0.00
Gas	Multifamily	Heat Central Boiler	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	15	25	\$4,143	95%	100%	\$26.38	0.00
Gas	Multifamily	Heat Central Furnace	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	42	40	\$1,074	25%	62%	\$2.22	0.00
Gas	Multifamily	Heat Central Furnace	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	9	40	\$97	100%	62%	\$0.95	0.00
Gas	Multifamily	Heat Central Furnace	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	5	40	\$26	100%	62%	\$0.43	52,431
Gas	Multifamily	Heat Central Furnace	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	63	18	\$1,162	25%	62%	\$2.15	0.00
Gas	Multifamily	Heat Central Furnace	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	58	40	\$765	25%	62%	\$1.17	0.00
Gas	Multifamily	Heat Central Furnace	Furnace - ENERGY STAR	ENERGY STAR Furnace - 90% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	Existing	45	20	\$248	100%	N/A	\$0.62	336,278
Gas	Multifamily	Heat Central Furnace	Furnace - High Efficiency	High Efficiency Furnace - 94% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	Existing	57	20	\$525	100%	N/A	\$1.02	0.00
Gas	Multifamily	Heat Central Furnace	Furnace - Premium Efficiency	Premium Efficiency Furnace - 98% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	Existing	69	20	\$828	100%	N/A	\$1.35	0.00
Gas	Multifamily	Heat Central Furnace	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	8	11	\$191	75%	92%	\$3.65	0.00
Gas	Multifamily	Heat Central Furnace	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	12	11	\$33	100%	94%	\$0.44	181,880
Gas	Multifamily	Heat Central Furnace	Quality Installation - Furnace	Quality Installation of Furnace - Commissioning, Controls, and Proper Sizing	Standard Installation of Furnace	Savings Per Building	Existing	6	20	\$225	95%	0%	\$3.68	0.00
Gas	Multifamily	Heat Central Furnace	Tune-up - Furnace (Gas)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	24	5	\$114	95%	75%	\$1.36	0.00
Gas	Multifamily	Heat Central Furnace	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	11	40	\$108	0.0%	95%	\$0.86	0.00
Gas	Multifamily	Heat Central Furnace	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	60	40	\$611	50%	62%	\$0.89	293,631
Gas	Multifamily	Heat Central Furnace	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	12	11	\$172	10%	100%	\$2.28	0.00
Gas	Multifamily	Heat Central Furnace	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	30	25	\$3,341	95%	50%	\$11.28	0.00
Gas	Multifamily	Heat Central Furnace	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	36	25	\$5,820	95%	100%	\$16.14	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Heat Central Furnace	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	5	40	\$218	75%	62%	\$3.73	0.00
Gas	Multifamily	Heat Central Furnace	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	31	40	\$2,145	5.0%	**%	\$6.01	0.00
Gas	Multifamily	Heat Central Furnace	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	8	40	\$97	100%	62%	\$1.07	0.00
Gas	Multifamily	Heat Central Furnace	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	4	40	\$26	100%	62%	\$0.48	918
Gas	Multifamily	Heat Central Furnace	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	3	40	\$211	75%	62%	\$6.15	0.00
Gas	Multifamily	Heat Central Furnace	Furnace - ENERGY STAR	ENERGY STAR Furnace - 90% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	New	32	20	\$248	100%	N/A	\$0.87	0.00
Gas	Multifamily	Heat Central Furnace	Furnace - High Efficiency	High Efficiency Furnace - 94% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	New	41	20	\$525	100%	N/A	\$1.44	0.00
Gas	Multifamily	Heat Central Furnace	Furnace - Premium Efficiency	Premium Efficiency Furnace - 98% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	New	49	20	\$828	100%	N/A	\$1.89	0.00
Gas	Multifamily	Heat Central Furnace	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	12	40	\$14,737	10%	**%	\$107.29	0.00
Gas	Multifamily	Heat Central Furnace	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	22	20	\$495	0.0%	95%	\$2.48	0.00
Gas	Multifamily	Heat Central Furnace	Quality Installation - Furnace	Quality Installation of Furnace - Commissioning, Controls, and Proper Sizing	Standard Installation of Furnace	Savings Per Building	New	4	20	\$225	95%	0%	\$5.18	0.00
Gas	Multifamily	Heat Central Furnace	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	24	40	\$358	20%	75%	\$1.30	0.00
Gas	Multifamily	Heat Central Furnace	Tune-up - Furnace (Gas)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	New	17	5	\$114	0.0%	75%	\$1.92	0.00
Gas	Multifamily	Heat Central Furnace	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	9	40	\$102	75%	90%	\$0.97	0.00
Gas	Multifamily	Heat Central Furnace	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	8	11	\$172	10%	100%	\$3.21	0.00
Gas	Multifamily	Heat Central Furnace	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	7	25	\$1,043	95%	50%	\$14.58	0.00
Gas	Multifamily	Heat Central Furnace	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	14	25	\$4,143	95%	100%	\$28.95	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	Existing	51	20	\$-193.3679	0.0%	95%	\$-0.42	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater > 55 GAL	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	111	20	\$4,675	20%	N/A	\$5.06	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Water Heater - Condensing	Condensing Water Heater > 55 GAL - EF 0.85	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	61	13	\$1,448	10%	N/A	\$3.35	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat GT 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater > 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	34	13	\$631	100%	N/A	\$2.63	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Water Heater - Federal Standard 2015 Condensing	Federal Standard 2015 Condensing Water Heater > 55 GAL - EF 0.74	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	46	13	\$947	10%	N/A	\$2.91	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	New	51	20	\$-212.9959	0.0%	95%	\$-0.46	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater > 55 GAL	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	111	20	\$4,675	20%	N/A	\$5.06	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Water Heater - Condensing	Condensing Water Heater > 55 GAL - EF 0.85	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	61	13	\$1,448	30%	N/A	\$3.35	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater > 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	34	13	\$631	100%	N/A	\$2.63	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Water Heater - Federal Standard 2015 Condensing	Federal Standard 2015 Condensing Water Heater > 55 GAL - EF 0.74	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	46	13	\$947	30%	N/A	\$2.91	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	6	11	\$140	60%	38%	\$3.29	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	2	11	\$58	60%	38%	\$3.82	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	11	11	\$210	60%	38%	\$2.83	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	8	11	\$198	60%	38%	\$3.58	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	4	11	\$116	60%	38%	\$4.17	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	13	11	\$268	60%	38%	\$3.08	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat GT 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	9	11	\$152	60%	38%	\$2.57	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$70	60%	38%	\$2.21	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	2	11	\$161	33%	77%	\$11.05	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	0.77	11	\$7	33%	77%	\$1.50	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	2	11	\$309	59%	77%	\$19.10	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	1	11	\$155	59%	77%	\$23.99	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	1	11	\$154	59%	77%	\$15.82	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	21	40	\$935	0.5%	**%	\$3.81	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Faucet Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	2	10	\$3	100%	25%	\$0.20	2,482
Gas	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	2	10	\$1	50%	65%	\$0.08	2,823
Gas	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	6	10	\$2	50%	95%	\$0.06	10,022
Gas	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	9	10	\$9	100%	65%	\$0.18	21,960
Gas	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	9	10	\$29	100%	10%	\$0.52	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	2	15	\$3	85%	30%	\$0.21	2,037
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	6	11	\$140	60%	38%	\$3.29	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	2	11	\$58	60%	38%	\$3.82	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	11	11	\$210	60%	38%	\$2.83	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	8	11	\$198	60%	38%	\$3.58	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	4	11	\$116	60%	38%	\$4.17	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	13	11	\$268	60%	38%	\$3.08	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	9	11	\$152	60%	38%	\$2.57	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$70	60%	38%	\$2.21	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	2	11	\$161	33%	77%	\$11.05	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	0.77	11	\$7	33%	77%	\$1.50	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	2	11	\$309	59%	77%	\$19.10	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	1	11	\$155	59%	77%	\$23.99	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	1	11	\$154	59%	77%	\$15.82	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	21	40	\$935	0.5%	***	\$3.83	0.00
Gas	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	2	10	\$1	50%	65%	\$0.08	53
Gas	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	6	10	\$2	50%	95%	\$0.06	190
Gas	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	9	10	\$9	100%	65%	\$0.18	416
Gas	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	2	15	\$3	100%	0%	\$0.21	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	Existing	46	20	\$-193.3679	0.0%	95%	\$-0.47	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	100	20	\$5,315	20%	N/A	\$6.35	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - Condensing	Condensing Water Heater = 55 GAL - EF 0.90	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	50	13	\$1,360	10%	N/A	\$3.83	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater = 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	17	13	\$186	100%	N/A	\$1.51	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Tankless	ENERGY STAR Tankless Water Heater = 55 GAL - EF 0.82	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	41	13	\$640	10%	N/A	\$2.21	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.62	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	7	13	\$60	100%	N/A	\$1.22	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	New	46	20	\$-212.9959	0.0%	95%	\$-0.52	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	100	20	\$5,315	20%	N/A	\$6.35	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - Condensing	Condensing Water Heater = 55 GAL - EF 0.90	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	50	13	\$1,360	30%	N/A	\$3.83	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater = 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	17	13	\$186	100%	N/A	\$1.51	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Tankless	ENERGY STAR Tankless Water Heater = 55 GAL - EF 0.82	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	41	13	\$640	30%	N/A	\$2.21	0.00
Gas	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.62	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	7	13	\$60	100%	N/A	\$1.22	-0.4142122
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	6	11	\$140	60%	38%	\$3.29	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	2	11	\$58	60%	38%	\$3.82	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	11	11	\$210	60%	38%	\$2.83	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	8	11	\$198	60%	38%	\$3.58	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	4	11	\$116	60%	38%	\$4.17	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	13	11	\$268	60%	38%	\$3.08	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	9	11	\$152	60%	38%	\$2.57	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$70	60%	38%	\$2.21	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	2	11	\$161	33%	77%	\$11.05	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	0.77	11	\$7	33%	77%	\$1.50	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	2	11	\$309	59%	77%	\$19.10	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	1	11	\$155	59%	77%	\$23.99	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	1	11	\$154	59%	77%	\$15.82	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	19	40	\$935	0.5%	---	\$4.25	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	2	10	\$3	100%	25%	\$0.20	7,255
Gas	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	2	10	\$1	50%	65%	\$0.08	8,252
Gas	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	6	10	\$2	50%	95%	\$0.06	29,292
Gas	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	9	10	\$9	100%	65%	\$0.18	64,184
Gas	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	9	10	\$29	100%	10%	\$0.52	9,874
Gas	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	2	15	\$3	85%	30%	\$0.21	5,909
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	6	11	\$140	60%	38%	\$3.29	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	2	11	\$58	60%	38%	\$3.82	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	11	11	\$210	60%	38%	\$2.83	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	8	11	\$198	60%	38%	\$3.58	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	4	11	\$116	60%	38%	\$4.17	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	13	11	\$268	60%	38%	\$3.08	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	9	11	\$152	60%	38%	\$2.57	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$70	60%	38%	\$2.21	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	4	11	\$81	60%	38%	\$2.99	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	2	11	\$161	33%	77%	\$11.05	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	0.77	11	\$7	33%	77%	\$1.50	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	2	11	\$309	59%	77%	\$19.10	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	1	11	\$155	59%	77%	\$23.99	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	1	11	\$154	59%	77%	\$15.82	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	19	40	\$935	0.5%	**%	\$4.26	0.00
Gas	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	2	10	\$1	50%	65%	\$0.08	166
Gas	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	6	10	\$2	50%	95%	\$0.06	592
Gas	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	9	10	\$9	100%	65%	\$0.18	1,298

Table F.1. Residential Measures Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	2	15	\$3	100%	0%	\$0.21	0.00
Gas	Single Family	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	Existing	10	19	\$125	100%	N/A	\$1.36	0.00
Gas	Single Family	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	New	10	19	\$125	100%	N/A	\$1.36	0.00
Gas	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Dryer - CEF/EF 3.54/3.63	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	Existing	6	11	\$747	100%	N/A	\$17.68	0.00
Gas	Single Family	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.30/3.38	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	Existing	5	11	\$101	100%	N/A	\$3.12	-178.3380562
Gas	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Dryer - CEF/EF 3.54/3.63	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	New	6	11	\$747	100%	N/A	\$17.68	0.00
Gas	Single Family	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.30/3.38	Standard Dryer with Controls and Moisture Sensor - CEF/EF 2.70/2.74	Per Installation	New	5	11	\$101	100%	N/A	\$3.12	-0.0123573
Gas	Single Family	Heat Central Boiler	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	94	18	\$1,585	13%	95%	\$1.98	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Advanced Efficiency	Advanced Efficiency Boiler - 98% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	Existing	125	20	\$5,000	100%	N/A	\$4.48	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Controls	Boiler Controls	No Boiler Control	Savings Per Building	Existing	39	20	\$378	80%	95%	\$1.07	0.00
Gas	Single Family	Heat Central Boiler	Boiler - High Efficiency	High Efficiency Boiler - 90% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	Existing	68	20	\$3,057	100%	N/A	\$5.03	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Pipe Insulation	R-6 Pipe Insulation	No Insulation	Savings Per Building	Existing	7	15	\$44	95%	30%	\$0.72	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Premium Efficiency	Premium Efficiency Boiler - 94% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	Existing	97	20	\$3,685	100%	N/A	\$4.22	0.00
Gas	Single Family	Heat Central Boiler	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	56	40	\$1,422	85%	64%	\$2.22	0.00
Gas	Single Family	Heat Central Boiler	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	18	40	\$194	100%	64%	\$0.95	0.00
Gas	Single Family	Heat Central Boiler	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	10	40	\$52	100%	64%	\$0.43	0.00
Gas	Single Family	Heat Central Boiler	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	146	18	\$1,162	25%	64%	\$0.94	0.00
Gas	Single Family	Heat Central Boiler	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	77	40	\$1,014	25%	64%	\$1.17	0.00
Gas	Single Family	Heat Central Boiler	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	20	11	\$320	75%	62%	\$2.47	0.00
Gas	Single Family	Heat Central Boiler	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	17	40	\$132	35%	64%	\$0.66	0.00
Gas	Single Family	Heat Central Boiler	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	Existing	71	20	\$-224.7142	75%	95%	\$-0.35	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Heat Central Boiler	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	27	11	\$33	100%	72%	\$0.19	0.00
Gas	Single Family	Heat Central Boiler	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	34	40	\$332	0.0%	95%	\$0.86	0.00
Gas	Single Family	Heat Central Boiler	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	187	40	\$1,881	75%	64%	\$0.89	0.00
Gas	Single Family	Heat Central Boiler	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	27	11	\$172	95%	100%	\$0.99	0.00
Gas	Single Family	Heat Central Boiler	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	70	25	\$7,807	95%	44%	\$11.28	0.00
Gas	Single Family	Heat Central Boiler	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	85	25	\$13,602	95%	99%	\$16.14	0.00
Gas	Single Family	Heat Central Boiler	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	87	18	\$1,585	45%	95%	\$2.15	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Advanced Efficiency	Advanced Efficiency Boiler - 98% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	New	115	20	\$5,000	100%	N/A	\$4.88	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Controls	Boiler Controls	No Boiler Control	Savings Per Building	New	36	20	\$378	0.0%	95%	\$1.17	0.00
Gas	Single Family	Heat Central Boiler	Boiler - High Efficiency	High Efficiency Boiler - 90% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	New	62	20	\$3,057	100%	N/A	\$5.48	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Pipe Insulation	R-6 Pipe Insulation	No Insulation	Savings Per Building	New	7	15	\$44	0.0%	30%	\$0.72	0.00
Gas	Single Family	Heat Central Boiler	Boiler - Premium Efficiency	Premium Efficiency Boiler - 94% AFUE	Federal Standard 2012 Boiler - 82% AFUE	Per Installation	New	89	20	\$3,685	100%	N/A	\$4.60	0.00
Gas	Single Family	Heat Central Boiler	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	7	40	\$289	95%	64%	\$3.40	0.00
Gas	Single Family	Heat Central Boiler	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	94	40	\$3,581	25%	***	\$3.37	0.00
Gas	Single Family	Heat Central Boiler	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	17	40	\$194	100%	64%	\$0.97	0.00
Gas	Single Family	Heat Central Boiler	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	10	40	\$52	100%	64%	\$0.44	0.00
Gas	Single Family	Heat Central Boiler	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	4	40	\$280	75%	64%	\$5.60	0.00
Gas	Single Family	Heat Central Boiler	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	36	40	\$18,975	10%	***	\$46.44	0.00
Gas	Single Family	Heat Central Boiler	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	64	20	\$827	85%	95%	\$1.45	0.00
Gas	Single Family	Heat Central Boiler	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	New	65	20	\$-216,3978	75%	95%	\$-0.37	0.00
Gas	Single Family	Heat Central Boiler	Quality Installation - Boiler	Quality Installation of Boiler - Commissioning, Controls, and Proper Sizing	Standard Installation of Boiler	Savings Per Building	New	36	20	\$225	95%	0%	\$0.70	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Heat Central Boiler	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	35	40	\$474	20%	75%	\$1.18	0.00
Gas	Single Family	Heat Central Boiler	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	32	40	\$321	75%	90%	\$0.88	0.00
Gas	Single Family	Heat Central Boiler	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	25	11	\$172	95%	100%	\$1.08	0.00
Gas	Single Family	Heat Central Boiler	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	18	25	\$2,368	95%	44%	\$13.29	0.00
Gas	Single Family	Heat Central Boiler	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	36	25	\$9,405	95%	99%	\$26.38	0.00
Gas	Single Family	Heat Central Furnace	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	56	40	\$1,422	85%	64%	\$2.22	0.00
Gas	Single Family	Heat Central Furnace	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	18	40	\$194	100%	64%	\$0.95	0.00
Gas	Single Family	Heat Central Furnace	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	10	40	\$52	100%	64%	\$0.43	639,364
Gas	Single Family	Heat Central Furnace	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	112	18	\$1,162	25%	64%	\$1.22	0.00
Gas	Single Family	Heat Central Furnace	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	77	40	\$1,014	25%	64%	\$1.17	0.00
Gas	Single Family	Heat Central Furnace	Furnace - ENERGY STAR	ENERGY STAR Furnace - 90% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	Existing	79	20	\$372	100%	N/A	\$0.52	3,140,351
Gas	Single Family	Heat Central Furnace	Furnace - High Efficiency	High Efficiency Furnace - 94% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	Existing	101	20	\$788	100%	N/A	\$0.87	0.00
Gas	Single Family	Heat Central Furnace	Furnace - Premium Efficiency	Premium Efficiency Furnace - 98% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	Existing	121	20	\$1,242	100%	N/A	\$1.14	0.00
Gas	Single Family	Heat Central Furnace	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	15	11	\$320	75%	62%	\$3.23	0.00
Gas	Single Family	Heat Central Furnace	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	17	40	\$132	35%	64%	\$0.66	0.00
Gas	Single Family	Heat Central Furnace	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	21	11	\$33	100%	72%	\$0.25	1,450,332
Gas	Single Family	Heat Central Furnace	Quality Installation - Furnace	Quality Installation of Furnace - Commissioning, Controls, and Proper Sizing	Standard Installation of Furnace	Savings Per Building	Existing	12	20	\$225	95%	0%	\$2.08	0.00
Gas	Single Family	Heat Central Furnace	Tune-up - Furnace (Gas)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	43	5	\$114	95%	75%	\$0.77	0.00
Gas	Single Family	Heat Central Furnace	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	34	40	\$332	0.0%	95%	\$0.86	0.00
Gas	Single Family	Heat Central Furnace	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	187	40	\$1,881	75%	64%	\$0.89	8,247,955
Gas	Single Family	Heat Central Furnace	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	21	11	\$172	95%	100%	\$1.29	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Heat Central Furnace	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	70	25	\$7,807	95%	44%	\$11.28	0.00
Gas	Single Family	Heat Central Furnace	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	85	25	\$13,602	95%	99%	\$16.14	0.00
Gas	Single Family	Heat Central Furnace	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	6	40	\$289	95%	64%	\$3.73	0.00
Gas	Single Family	Heat Central Furnace	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	68	40	\$3,581	25%	***	\$4.66	0.00
Gas	Single Family	Heat Central Furnace	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	16	40	\$194	100%	64%	\$1.07	0.00
Gas	Single Family	Heat Central Furnace	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	9	40	\$52	100%	64%	\$0.48	8,894
Gas	Single Family	Heat Central Furnace	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	4	40	\$280	75%	64%	\$6.15	0.00
Gas	Single Family	Heat Central Furnace	Furnace - ENERGY STAR	ENERGY STAR Furnace - 90% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	New	69	20	\$372	100%	N/A	\$0.60	67,676
Gas	Single Family	Heat Central Furnace	Furnace - High Efficiency	High Efficiency Furnace - 94% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	New	88	20	\$788	100%	N/A	\$1.00	0.00
Gas	Single Family	Heat Central Furnace	Furnace - Premium Efficiency	Premium Efficiency Furnace - 98% AFUE	Federal Standard 1992 Furnace - 78% AFUE	Per Installation	New	105	20	\$1,242	100%	N/A	\$1.32	0.00
Gas	Single Family	Heat Central Furnace	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	26	40	\$18,975	10%	***	\$64.12	0.00
Gas	Single Family	Heat Central Furnace	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	46	20	\$827	85%	95%	\$2.00	0.00
Gas	Single Family	Heat Central Furnace	Quality Installation - Furnace	Quality Installation of Furnace - Commissioning, Controls, and Proper Sizing	Standard Installation of Furnace	Savings Per Building	New	10	20	\$225	95%	0%	\$2.40	0.00
Gas	Single Family	Heat Central Furnace	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	32	40	\$474	20%	75%	\$1.30	0.00
Gas	Single Family	Heat Central Furnace	Tune-up - Furnace (Gas)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	New	37	5	\$114	0.0%	75%	\$0.89	0.00
Gas	Single Family	Heat Central Furnace	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	29	40	\$321	75%	90%	\$0.97	0.00
Gas	Single Family	Heat Central Furnace	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	18	11	\$172	95%	100%	\$1.49	0.00
Gas	Single Family	Heat Central Furnace	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	16	25	\$2,368	95%	44%	\$14.58	0.00
Gas	Single Family	Heat Central Furnace	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	33	25	\$9,405	95%	99%	\$28.95	0.00
Gas	Single Family	Pool Heat	Pool Covers	Pool Covers	No Pool Cover	Savings Per Building	Existing	128	3	\$231	75%	40%	\$0.82	0.00
Gas	Single Family	Pool Heat	Pool Heater - Efficient	Efficient Pool Heater - 88% Efficient	Standard Pool Heater - 83% Efficient	Per Installation	Existing	14	8	\$563	100%	N/A	\$7.70	0.00

Table F.1. Residential Measures Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Pool Heat	Pool Heater - Efficient	Efficient Pool Heater - 88% Efficient	Standard Pool Heater - 83% Efficient	Per Installation	New	14	8	\$563	100%	N/A	\$7.70	0.00
Gas	Single Family	Water Heat GT 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	Existing	64	20	\$-181.1982	0.0%	95%	\$-0.32	0.00
Gas	Single Family	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater > 55 GAL	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	138	20	\$4,675	20%	N/A	\$4.09	0.00
Gas	Single Family	Water Heat GT 55 Gal	Water Heater - Condensing	Condensing Water Heater > 55 GAL - EF 0.85	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	76	13	\$1,448	90%	N/A	\$2.71	0.00
Gas	Single Family	Water Heat GT 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater > 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	42	13	\$631	100%	N/A	\$2.13	0.00
Gas	Single Family	Water Heat GT 55 Gal	Water Heater - Federal Standard 2015 Condensing	Federal Standard 2015 Condensing Water Heater > 55 GAL - EF 0.74	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	Existing	57	13	\$947	90%	N/A	\$2.35	0.00
Gas	Single Family	Water Heat GT 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	New	63	20	\$-189.5147	0.0%	95%	\$-0.33	0.00
Gas	Single Family	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater > 55 GAL	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	138	20	\$4,675	20%	N/A	\$4.09	0.00
Gas	Single Family	Water Heat GT 55 Gal	Water Heater - Condensing	Condensing Water Heater > 55 GAL - EF 0.85	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	76	13	\$1,448	100%	N/A	\$2.71	0.00
Gas	Single Family	Water Heat GT 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater > 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	42	13	\$631	100%	N/A	\$2.13	0.00
Gas	Single Family	Water Heat GT 55 Gal	Water Heater - Federal Standard 2015 Condensing	Federal Standard 2015 Condensing Water Heater > 55 GAL - EF 0.74	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.53	Per Installation	New	57	13	\$947	100%	N/A	\$2.35	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	9	11	\$140	99%	33%	\$2.45	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	3	11	\$58	99%	33%	\$2.85	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	15	11	\$210	99%	33%	\$2.11	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	11	11	\$198	99%	33%	\$2.68	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$116	99%	33%	\$3.11	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	18	11	\$268	99%	33%	\$2.30	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	12	11	\$152	99%	33%	\$1.92	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	6	11	\$70	99%	33%	\$1.65	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	3	11	\$161	71%	30%	\$8.26	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	1	11	\$7	71%	30%	\$1.12	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	3	11	\$309	71%	30%	\$14.27	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	1	11	\$155	71%	30%	\$17.92	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	2	11	\$154	71%	30%	\$11.82	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	26	40	\$935	30%	**	\$3.08	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	6	10	\$5	100%	25%	\$0.15	41,814
Gas	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	5	10	\$2	75%	65%	\$0.06	71,346
Gas	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	13	10	\$3	75%	95%	\$0.04	253,239
Gas	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	19	10	\$15	100%	65%	\$0.13	340,672
Gas	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	19	10	\$44	100%	10%	\$0.38	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	2	15	\$3	95%	30%	\$0.21	16,030
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	9	11	\$140	99%	33%	\$2.45	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	3	11	\$58	99%	33%	\$2.85	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	15	11	\$210	99%	33%	\$2.11	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	11	11	\$198	99%	33%	\$2.68	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$116	99%	33%	\$3.11	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	18	11	\$268	99%	33%	\$2.30	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	12	11	\$152	99%	33%	\$1.92	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	6	11	\$70	99%	33%	\$1.65	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	3	11	\$161	71%	30%	\$8.26	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	1	11	\$7	71%	30%	\$1.12	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	3	11	\$309	71%	30%	\$14.27	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	1	11	\$155	71%	30%	\$17.92	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	2	11	\$154	71%	30%	\$11.82	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	26	40	\$935	60%	0%	\$3.10	0.00
Gas	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	5	10	\$2	75%	65%	\$0.06	1,353
Gas	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	13	10	\$3	75%	95%	\$0.04	4,802
Gas	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	19	10	\$15	100%	65%	\$0.13	6,460

Table F.1. Residential Measures Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Water Heat Lt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	2	15	\$3	100%	0%	\$0.21	0.00
Gas	Single Family	Water Heat LE 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	Existing	57	20	\$-181,1982	0.0%	95%	\$-0.35	0.00
Gas	Single Family	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	123	20	\$5,315	20%	N/A	\$5.13	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - Condensing	Condensing Water Heater = 55 GAL - EF 0.90	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	62	13	\$1,360	90%	N/A	\$3.09	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater = 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	21	13	\$186	100%	N/A	\$1.22	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Tankless	ENERGY STAR Tankless Water Heater = 55 GAL - EF 0.82	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	51	13	\$640	90%	N/A	\$1.79	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.62	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	Existing	8	13	\$60	100%	N/A	\$0.99	0.00
Gas	Single Family	Water Heat LE 55 Gal	Integrated Space Heating and Water Heating	84% CAE or Above	Standard Boiler AFUE 82% and Water Heater EF = 0.59	Savings Per Building	New	57	20	\$-189,5147	0.0%	95%	\$-0.37	0.00
Gas	Single Family	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	123	20	\$5,315	20%	N/A	\$5.13	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - Condensing	Condensing Water Heater = 55 GAL - EF 0.90	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	62	13	\$1,360	100%	N/A	\$3.09	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Storage	ENERGY STAR Storage Water Heater = 55 GAL - EF 0.67	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	21	13	\$186	100%	N/A	\$1.22	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - ENERGY STAR Tankless	ENERGY STAR Tankless Water Heater = 55 GAL - EF 0.82	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	51	13	\$640	100%	N/A	\$1.79	0.00
Gas	Single Family	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.62	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.59	Per Installation	New	8	13	\$60	100%	N/A	\$0.99	-2.2940124
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	9	11	\$140	99%	33%	\$2.45	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	3	11	\$58	99%	33%	\$2.85	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	15	11	\$210	99%	33%	\$2.11	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	11	11	\$198	99%	33%	\$2.68	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$116	99%	33%	\$3.11	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	18	11	\$268	99%	33%	\$2.30	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	12	11	\$152	99%	33%	\$1.92	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	6	11	\$70	99%	33%	\$1.65	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	3	11	\$161	71%	30%	\$8.26	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	1	11	\$7	71%	30%	\$1.12	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	3	11	\$309	71%	30%	\$14.27	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	1	11	\$155	71%	30%	\$17.92	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	2	11	\$154	71%	30%	\$11.82	0.00
Gas	Single Family	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	24	40	\$935	30%	***	\$3.44	0.00
Gas	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	6	10	\$5	100%	25%	\$0.15	77,967
Gas	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	5	10	\$2	75%	65%	\$0.06	133,031
Gas	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	13	10	\$3	75%	95%	\$0.04	472,188
Gas	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	19	10	\$15	100%	65%	\$0.13	635,214
Gas	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	19	10	\$44	100%	10%	\$0.38	0.00
Gas	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	2	15	\$3	95%	30%	\$0.21	29,363

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	9	11	\$140	99%	33%	\$2.45	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	3	11	\$58	99%	33%	\$2.85	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	15	11	\$210	99%	33%	\$2.11	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	11	11	\$198	99%	33%	\$2.68	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$116	99%	33%	\$3.11	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	18	11	\$268	99%	33%	\$2.30	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	12	11	\$152	99%	33%	\$1.92	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	6	11	\$70	99%	33%	\$1.65	0.00
Gas	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	5	11	\$81	99%	33%	\$2.23	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	3	11	\$161	71%	30%	\$8.26	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	1	11	\$7	71%	30%	\$1.12	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	3	11	\$309	71%	30%	\$14.27	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	1	11	\$155	71%	30%	\$17.92	0.00
Gas	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	2	11	\$154	71%	30%	\$11.82	0.00

Table F.1. Residential Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Single Family	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	24	40	\$935	60%	**%	\$3.45	0.00
Gas	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	5	10	\$2	75%	65%	\$0.06	2,691
Gas	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	13	10	\$3	75%	95%	\$0.04	9,554
Gas	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	19	10	\$15	100%	65%	\$0.13	12,853
Gas	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	2	15	\$3	100%	0%	\$0.21	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)	
Gas	Grocery	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	66	12	\$150	19%	90%	\$0.34	413	
Gas	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	41	12	\$44	19%	90%	\$0.16	430	
Gas	Grocery	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	133	12	\$799	19%	85%	\$0.90	0.00	
Gas	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	14	12	\$132	19%	70%	\$1.39	0.00	
Gas	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	12	12	\$83	19%	55%	\$1.01	0.00	
Gas	Grocery	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	33	12	\$326	14%	75%	\$1.48	0.00	
Gas	Grocery	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	66	12	\$150	19%	90%	\$0.34	40	
Gas	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	41	12	\$44	19%	90%	\$0.16	41	
Gas	Grocery	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	133	12	\$799	19%	85%	\$0.90	0.00	
Gas	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	14	12	\$132	19%	70%	\$1.39	0.00	
Gas	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	12	12	\$83	19%	55%	\$1.01	0.00	
Gas	Grocery	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	33	12	\$326	14%	75%	\$1.48	0.00	
Gas	Grocery	Space Heat	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	66	20	\$270	75%	80%	\$0.46	725	
Gas	Grocery	Space Heat	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	27	10	\$471	75%	20%	\$2.88	0.00	
Gas	Grocery	Space Heat	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	10	10	\$138	75%	65%	\$2.33	0.00	
Gas	Grocery	Space Heat	Boiler < 300 kBtu/h - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	181	20	\$1,734	100%	N/A	\$1.07	0.00	
Gas	Grocery	Space Heat	Boiler < 300 kBtu/h - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	110	20	\$990	100%	N/A	\$1.01	0.00	
Gas	Grocery	Space Heat	Boiler < 300 kBtu/h - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	158	20	\$1,486	100%	N/A	\$1.05	0.00	
Gas	Grocery	Space Heat	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	120	10	\$2,058	75%	85%	\$2.91	0.00	
Gas	Grocery	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	360	15	\$11,757	1.0%	70%	\$4.26	0.00	
Gas	Grocery	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	180	5	\$312	75%	75%	\$0.51	2,333	
Gas	Grocery	Space Heat	Boiler	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	180	14	\$5,080	5.0%	95%	\$3.84	0.00	
Gas	Grocery	Space Heat	Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Per Building	Existing	54	12	\$5,450	10%	85%	\$15.12	0.00	
Gas	Grocery	Space Heat	Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	120	12	\$76	10%	60%	\$0.10	142

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Grocery	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	236	25	\$2,036	45%	65%	\$0.88	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	29	25	\$980	25%	85%	\$3.33	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	289	25	\$3,635	15%	85%	\$1.28	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	53	25	\$1,121	15%	95%	\$2.12	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	382	25	\$8,938	10%	45%	\$2.38	0.00
Gas	Grocery	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	108	20	\$779	10%	95%	\$0.81	0.00
Gas	Grocery	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	150	7	\$2,456	90%	95%	\$3.62	0.00
Gas	Grocery	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	60	3	\$78	95%	50%	\$0.59	0.00
Gas	Grocery	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	10	10	\$138	95%	65%	\$2.33	0.00
Gas	Grocery	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	181	20	\$1,734	100%	N/A	\$1.07	0.00
Gas	Grocery	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	110	20	\$990	100%	N/A	\$1.01	0.00
Gas	Grocery	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	158	20	\$1,486	100%	N/A	\$1.05	0.00
Gas	Grocery	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	117	10	\$2,058	95%	85%	\$2.97	0.00
Gas	Grocery	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	67	7	\$2,862	95%	95%	\$9.37	0.00
Gas	Grocery	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	176	5	\$312	25%	25%	\$0.52	24
Gas	Grocery	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	176	14	\$5,080	5.0%	95%	\$3.92	0.00
Gas	Grocery	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	52	12	\$5,450	10%	85%	\$15.46	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	29	25	\$980	75%	85%	\$3.40	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	52	25	\$1,121	15%	95%	\$2.17	0.00
Gas	Grocery	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	142	25	\$934	95%	85%	\$0.67	179
Gas	Grocery	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	105	20	\$779	25%	95%	\$0.83	0.00
Gas	Grocery	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	368	15	\$11,757	1.0%	70%	\$4.18	0.00
Gas	Grocery	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	184	5	\$312	75%	75%	\$0.50	7,149
Gas	Grocery	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	30	18	\$928	45%	85%	\$3.58	0.00
Gas	Grocery	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	184	14	\$5,080	5.0%	95%	\$3.76	0.00
Gas	Grocery	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	55	12	\$5,450	10%	85%	\$14.82	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Grocery	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	77	20	\$627	1.7%	N/A	\$0.91	0.00
Gas	Grocery	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	26	20	\$193	1.7%	N/A	\$0.81	0.00
Gas	Grocery	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	52	20	\$402	1.7%	N/A	\$0.86	0.00
Gas	Grocery	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	122	12	\$76	10%	60%	\$0.09	439
Gas	Grocery	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	241	25	\$2,036	45%	65%	\$0.86	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	30	25	\$980	25%	85%	\$3.26	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	36	20	\$521	45%	60%	\$1.59	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	22	20	\$91	45%	85%	\$0.47	501
Gas	Grocery	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	294	25	\$3,635	15%	85%	\$1.26	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	54	25	\$1,121	15%	95%	\$2.08	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	390	25	\$8,938	10%	45%	\$2.33	0.00
Gas	Grocery	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	153	7	\$2,456	90%	95%	\$3.55	0.00
Gas	Grocery	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	61	3	\$87	95%	50%	\$0.65	0.00
Gas	Grocery	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	69	7	\$2,862	95%	95%	\$9.14	0.00
Gas	Grocery	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	180	5	\$312	25%	25%	\$0.50	76
Gas	Grocery	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	180	14	\$5,080	5.0%	95%	\$3.83	0.00
Gas	Grocery	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	54	12	\$5,450	10%	85%	\$15.08	0.00
Gas	Grocery	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	77	20	\$627	1.7%	N/A	\$0.91	0.00
Gas	Grocery	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	26	20	\$193	1.7%	N/A	\$0.81	0.00
Gas	Grocery	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	52	20	\$402	1.7%	N/A	\$0.86	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	30	25	\$980	75%	85%	\$3.32	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	21	20	\$91	45%	85%	\$0.47	39
Gas	Grocery	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	53	25	\$1,121	15%	95%	\$2.12	0.00
Gas	Grocery	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	146	25	\$934	95%	85%	\$0.65	554

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Grocery	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	6	10	\$1,074	75%	95%	\$30.34	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.61	12	\$39	45%	35%	\$9.47	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$49	40%	95%	\$1.93	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$49	40%	95%	\$2.11	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	1	12	\$32	75%	75%	\$4.00	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	24	25	\$999	2.5%	95%	\$4.23	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	37	20	\$779	10%	95%	\$2.31	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	4	9	\$0.38	95%	75%	\$0.02	77
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.38	95%	50%	\$0.04	21
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.72	9	\$7	95%	25%	\$1.96	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	34	4	\$204	95%	75%	\$2.10	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	3	10	\$117	75%	95%	\$6.66	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	13	10	\$2,730	55%	95%	\$33.81	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	34	13	\$1,184	100%	N/A	\$4.87	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	45	13	\$1,810	100%	N/A	\$5.68	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	25	13	\$789	100%	N/A	\$4.43	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	17	13	\$507	100%	N/A	\$4.07	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	5	10	\$1,074	75%	95%	\$30.48	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.61	12	\$39	45%	35%	\$9.47	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$47	40%	95%	\$1.93	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$47	40%	95%	\$2.11	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	23	25	\$800	2.5%	95%	\$3.40	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	37	20	\$779	25%	95%	\$2.32	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	4	9	\$0.38	95%	75%	\$0.02	7
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.38	95%	50%	\$0.04	1
Gas	Grocery	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	34	4	\$204	95%	75%	\$2.10	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	2	10	\$117	75%	95%	\$6.69	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	13	10	\$2,730	55%	95%	\$33.97	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	34	13	\$1,184	100%	N/A	\$4.87	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	45	13	\$1,810	100%	N/A	\$5.68	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	25	13	\$789	100%	N/A	\$4.43	0.00
Gas	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	17	13	\$507	100%	N/A	\$4.07	0.00
Gas	Grocery	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	6	10	\$1,074	50%	95%	\$30.14	0.00
Gas	Grocery	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.61	12	\$39	75%	35%	\$9.47	0.00
Gas	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$49	50%	95%	\$1.93	0.00
Gas	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	3	12	\$49	50%	95%	\$2.11	0.00
Gas	Grocery	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	1	12	\$32	75%	75%	\$3.98	0.00
Gas	Grocery	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	24	25	\$999	2.5%	95%	\$4.20	0.00
Gas	Grocery	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	38	20	\$779	10%	95%	\$2.29	0.00
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	4	9	\$0.38	95%	75%	\$0.02	127
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.38	95%	50%	\$0.04	35

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.72	9	\$7	95%	25%	\$1.95	0.00
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	34	4	\$204	95%	75%	\$2.10	0.00
Gas	Grocery	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	3	10	\$117	75%	95%	\$6.62	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	13	10	\$2,730	55%	95%	\$33.58	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	41	13	\$906	100%	N/A	\$3.14	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	13	13	\$124	100%	N/A	\$1.29	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	4	13	\$40	100%	N/A	\$1.40	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	5	13	\$40	100%	N/A	\$1.14	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	33	13	\$426	100%	N/A	\$1.82	0.00
Gas	Grocery	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	6	10	\$1,074	50%	95%	\$30.22	0.00
Gas	Grocery	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.61	12	\$39	75%	35%	\$9.47	0.00
Gas	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$47	50%	95%	\$1.93	0.00
Gas	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	3	12	\$47	50%	95%	\$2.11	0.00
Gas	Grocery	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	24	25	\$800	2.5%	95%	\$3.37	0.00
Gas	Grocery	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	38	20	\$779	25%	95%	\$2.30	0.00
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	4	9	\$0.38	95%	75%	\$0.02	12
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.38	95%	50%	\$0.04	3
Gas	Grocery	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	34	4	\$204	95%	75%	\$2.10	0.00
Gas	Grocery	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	3	10	\$117	75%	95%	\$6.64	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	13	10	\$2,730	55%	95%	\$33.68	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	41	13	\$906	100%	N/A	\$3.14	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	13	13	\$124	100%	N/A	\$1.29	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	4	13	\$40	100%	N/A	\$1.40	-0.0005256
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	5	13	\$40	100%	N/A	\$1.14	0.00
Gas	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	33	13	\$426	100%	N/A	\$1.82	0.00
Gas	Health	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	13	12	\$30	7.0%	90%	\$0.34	430
Gas	Health	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	8	12	\$9	7.0%	60%	\$0.17	298
Gas	Health	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	27	12	\$161	7.0%	85%	\$0.89	0.00
Gas	Health	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	1	12	\$9	7.0%	70%	\$1.29	0.00
Gas	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	2	12	\$16	7.0%	55%	\$0.98	0.00
Gas	Health	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	6	12	\$65	11%	75%	\$1.46	0.00
Gas	Health	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	13	12	\$30	7.0%	90%	\$0.34	41
Gas	Health	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	8	12	\$9	7.0%	60%	\$0.17	28
Gas	Health	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	27	12	\$161	7.0%	85%	\$0.89	0.00
Gas	Health	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	1	12	\$9	7.0%	70%	\$1.29	0.00
Gas	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	2	12	\$16	7.0%	55%	\$0.98	0.00
Gas	Health	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	6	12	\$65	11%	75%	\$1.46	0.00
Gas	Health	Space Heat Boiler	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	276	15	\$877	5.0%	95%	\$0.41	1,172
Gas	Health	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	507	20	\$1,634	75%	80%	\$0.36	25,807
Gas	Health	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	77	10	\$1,314	75%	20%	\$2.89	0.00
Gas	Health	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	28	10	\$385	75%	65%	\$2.33	0.00
Gas	Health	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	1,390	20	\$10,487	100%	N/A	\$0.85	0.00
Gas	Health	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	847	20	\$5,992	100%	N/A	\$0.79	0.00
Gas	Health	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	1,217	20	\$8,990	100%	N/A	\$0.83	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	922	10	\$2,060	75%	85%	\$0.38	48,210
Gas	Health	Space Heat Boiler	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	2,768	15	\$71,102	15%	70%	\$3.36	0.00
Gas	Health	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,384	5	\$1,461	75%	75%	\$0.31	83,141
Gas	Health	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,384	14	\$30,721	5.0%	95%	\$3.02	0.00
Gas	Health	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	415	12	\$5,449	2.5%	85%	\$1.97	0.00
Gas	Health	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	922	12	\$605	10%	60%	\$0.10	5,075
Gas	Health	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,073	25	\$9,580	45%	65%	\$0.91	0.00
Gas	Health	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	230	25	\$4,607	25%	85%	\$2.04	0.00
Gas	Health	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,218	25	\$17,099	15%	85%	\$0.79	0.00
Gas	Health	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	413	25	\$5,276	15%	95%	\$1.30	0.00
Gas	Health	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,934	25	\$42,039	10%	45%	\$1.46	0.00
Gas	Health	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	830	20	\$4,712	10%	95%	\$0.64	7,357
Gas	Health	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,153	7	\$14,852	90%	95%	\$2.86	0.00
Gas	Health	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	461	3	\$474	95%	50%	\$0.47	16,641
Gas	Health	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	28	10	\$385	95%	65%	\$2.33	0.00
Gas	Health	Space Heat Boiler	Boiler < 300 kBtu/h - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	1,390	20	\$10,487	100%	N/A	\$0.85	0.00
Gas	Health	Space Heat Boiler	Boiler < 300 kBtu/h - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	847	20	\$5,992	100%	N/A	\$0.79	0.00
Gas	Health	Space Heat Boiler	Boiler < 300 kBtu/h - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	1,217	20	\$8,990	100%	N/A	\$0.83	0.00
Gas	Health	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	902	10	\$2,060	95%	85%	\$0.39	5,876
Gas	Health	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	519	7	\$17,307	95%	95%	\$7.38	0.00
Gas	Health	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,353	5	\$1,461	25%	25%	\$0.32	879
Gas	Health	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,353	14	\$30,721	5.0%	95%	\$3.09	0.00
Gas	Health	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	406	12	\$5,449	2.5%	85%	\$2.01	0.00
Gas	Health	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	224	25	\$4,607	75%	85%	\$2.09	0.00
Gas	Health	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	403	25	\$5,276	15%	95%	\$1.33	0.00
Gas	Health	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,093	25	\$4,394	95%	85%	\$0.41	6,379

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	812	20	\$4,712	25%	95%	\$0.65	961
Gas	Health	Space Heat Furnace	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	282	15	\$877	5.0%	95%	\$0.41	5,567
Gas	Health	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	2,823	15	\$71,102	15%	70%	\$3.29	0.00
Gas	Health	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,411	5	\$1,461	75%	75%	\$0.30	394,689
Gas	Health	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	235	18	\$5,613	45%	85%	\$2.82	0.00
Gas	Health	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,411	14	\$30,721	5.0%	95%	\$2.96	0.00
Gas	Health	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	423	12	\$5,449	2.5%	85%	\$1.93	0.00
Gas	Health	Space Heat Furnace	Furnace < 250 kBtu/h - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	591	20	\$3,796	1.7%	N/A	\$0.72	0.00
Gas	Health	Space Heat Furnace	Furnace < 250 kBtu/h - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	205	20	\$1,171	1.7%	N/A	\$0.64	0.00
Gas	Health	Space Heat Furnace	Furnace < 250 kBtu/h - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	402	20	\$2,434	1.7%	N/A	\$0.68	0.00
Gas	Health	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	941	12	\$605	10%	60%	\$0.10	24,290
Gas	Health	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,095	25	\$9,580	45%	65%	\$0.89	0.00
Gas	Health	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	234	25	\$4,607	25%	85%	\$2.00	0.00
Gas	Health	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	282	20	\$694	45%	60%	\$0.28	32,595
Gas	Health	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	169	20	\$123	45%	85%	\$0.08	28,066
Gas	Health	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,263	25	\$17,099	15%	85%	\$0.77	109,237
Gas	Health	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	421	25	\$5,276	15%	95%	\$1.28	0.00
Gas	Health	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,992	25	\$42,039	10%	45%	\$1.43	0.00
Gas	Health	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,176	7	\$14,852	90%	95%	\$2.80	0.00
Gas	Health	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	470	3	\$526	95%	50%	\$0.51	88,173
Gas	Health	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	532	7	\$17,307	95%	95%	\$7.20	0.00
Gas	Health	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,387	5	\$1,461	25%	25%	\$0.31	4,217
Gas	Health	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,387	14	\$30,721	5.0%	95%	\$3.02	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	416	12	\$5,449	2.5%	85%	\$1.97	0.00
Gas	Health	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	591	20	\$3,796	1.7%	N/A	\$0.72	0.00
Gas	Health	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	205	20	\$1,171	1.7%	N/A	\$0.64	0.00
Gas	Health	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	402	20	\$2,434	1.7%	N/A	\$0.68	0.00
Gas	Health	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	230	25	\$4,607	75%	85%	\$2.04	0.00
Gas	Health	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	166	20	\$123	45%	85%	\$0.08	2,185
Gas	Health	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	413	25	\$5,276	15%	95%	\$1.30	0.00
Gas	Health	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,121	25	\$4,394	95%	85%	\$0.40	30,571
Gas	Health	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	4	9	\$44	25%	95%	\$1.64	0.00
Gas	Health	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	2	14	\$18	5.0%	95%	\$1.09	0.00
Gas	Health	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	420	10	\$6,497	55%	95%	\$2.63	0.00
Gas	Health	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.35	12	\$23	75%	35%	\$9.93	0.00
Gas	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	6	12	\$81	10%	95%	\$1.94	0.00
Gas	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	5	12	\$81	10%	95%	\$2.12	0.00
Gas	Health	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	84	12	\$507	75%	75%	\$0.91	0.00
Gas	Health	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	1,680	25	\$16,000	2.5%	95%	\$0.97	0.00
Gas	Health	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	2,647	20	\$4,712	10%	95%	\$0.20	29,115
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	324	9	\$2	95%	75%	\$0.00	33,593
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	133	9	\$2	95%	50%	\$0.00	9,221
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	50	9	\$25	95%	25%	\$0.09	1,738
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	13	4	\$81	95%	95%	\$2.10	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	5	10	\$9	95%	85%	\$0.27	695
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	4	10	\$23	95%	25%	\$0.83	0.00
Gas	Health	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	210	10	\$392	75%	85%	\$0.32	19,448
Gas	Health	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	958	10	\$102	2.5%	95%	\$0.02	3,575
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	2,424	13	\$18,952	100%	N/A	\$1.11	0.00
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	3,173	13	\$28,967	100%	N/A	\$1.30	0.00
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	1,775	13	\$12,634	100%	N/A	\$1.01	0.00
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	1,243	13	\$8,122	100%	N/A	\$0.93	0.00
Gas	Health	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	4	9	\$44	25%	95%	\$1.64	0.00
Gas	Health	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	2	14	\$18	5.0%	95%	\$1.09	0.00
Gas	Health	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	418	10	\$6,497	55%	95%	\$2.64	0.00
Gas	Health	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.35	12	\$23	75%	35%	\$9.93	0.00
Gas	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	6	12	\$81	10%	95%	\$1.95	0.00
Gas	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	5	12	\$79	10%	95%	\$2.07	0.00
Gas	Health	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	1,672	25	\$12,798	2.5%	95%	\$0.78	0.00
Gas	Health	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	2,634	20	\$4,712	25%	95%	\$0.20	3,806
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	323	9	\$2	95%	75%	\$0.00	3,145
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	133	9	\$2	95%	50%	\$0.00	863
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	13	4	\$81	95%	95%	\$2.10	0.00
Gas	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	5	10	\$9	95%	85%	\$0.27	65
Gas	Health	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	209	10	\$392	75%	85%	\$0.32	1,821

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	953	10	\$102	2.5%	95%	\$0.02	334
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Gal - Condensing - Federal Standard 2015	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.743	Per Building	New	2,424	13	\$18,952	100%	N/A	\$1.11	0.00
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	3,173	13	\$28,967	100%	N/A	\$1.30	0.00
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	1,775	13	\$12,634	100%	N/A	\$1.01	0.00
Gas	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	1,243	13	\$8,122	100%	N/A	\$0.93	0.00
Gas	Health	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	4	9	\$44	25%	95%	\$1.64	0.00
Gas	Health	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	2	14	\$18	5.0%	95%	\$1.09	0.00
Gas	Health	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	423	10	\$6,497	75%	95%	\$2.61	0.00
Gas	Health	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.35	12	\$23	75%	35%	\$9.93	0.00
Gas	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	6	12	\$81	10%	95%	\$1.94	0.00
Gas	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	5	12	\$81	10%	95%	\$2.12	0.00
Gas	Health	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	84	12	\$507	75%	75%	\$0.90	0.00
Gas	Health	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	1,692	25	\$16,000	2.5%	95%	\$0.96	0.00
Gas	Health	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	2,665	20	\$4,712	10%	95%	\$0.20	38,366
Gas	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	326	9	\$2	95%	75%	\$0.00	44,266
Gas	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	134	9	\$2	95%	50%	\$0.00	12,151
Gas	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	50	9	\$25	95%	25%	\$0.09	2,291
Gas	Health	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	13	4	\$81	95%	95%	\$2.10	0.00
Gas	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	5	10	\$9	95%	85%	\$0.27	909
Gas	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	4	10	\$23	95%	25%	\$0.83	0.00
Gas	Health	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	211	10	\$392	75%	85%	\$0.32	25,628

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	964	10	\$102	2.5%	95%	\$0.02	4,711
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	2,872	13	\$14,510	100%	N/A	\$0.72	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	958	13	\$1,983	100%	N/A	\$0.30	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	288	13	\$647	100%	N/A	\$0.32	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	354	13	\$647	100%	N/A	\$0.26	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	2,328	13	\$6,827	100%	N/A	\$0.42	256,900
Gas	Health	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	4	9	\$44	25%	95%	\$1.64	0.00
Gas	Health	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	2	14	\$18	5.0%	95%	\$1.09	0.00
Gas	Health	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	421	10	\$6,497	75%	95%	\$2.62	0.00
Gas	Health	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.35	12	\$23	75%	35%	\$9.93	0.00
Gas	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	6	12	\$81	10%	95%	\$1.95	0.00
Gas	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	5	12	\$79	10%	95%	\$2.07	0.00
Gas	Health	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	1,687	25	\$12,798	2.5%	95%	\$0.77	0.00
Gas	Health	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	2,657	20	\$4,712	25%	95%	\$0.20	4,865
Gas	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	325	9	\$2	95%	75%	\$0.00	3,986
Gas	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	134	9	\$2	95%	50%	\$0.00	1,094
Gas	Health	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	13	4	\$81	95%	95%	\$2.10	0.00
Gas	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	5	10	\$9	95%	85%	\$0.27	82
Gas	Health	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	210	10	\$392	75%	85%	\$0.32	2,308

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Health	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	961	10	\$102	2.5%	95%	\$0.02	424
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	2,872	13	\$14,510	100%	N/A	\$0.72	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	958	13	\$1,983	100%	N/A	\$0.30	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	288	13	\$647	100%	N/A	\$0.32	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	354	13	\$647	100%	N/A	\$0.26	0.00
Gas	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	2,328	13	\$6,827	100%	N/A	\$0.42	27,558
Gas	Large Office	Space Heat Boiler	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	922	15	\$4,728	75%	95%	\$0.67	8,997
Gas	Large Office	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	1,014	20	\$5,287	75%	80%	\$0.59	6,705
Gas	Large Office	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	211	10	\$3,585	75%	20%	\$2.88	0.00
Gas	Large Office	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	76	10	\$1,051	75%	65%	\$2.32	0.00
Gas	Large Office	Space Heat Boiler	Boiler = 300 and = 2,500 kBtuh - High Efficiency	High Efficiency - Thermal Efficiency Et = 85%	Standard Efficiency - Thermal Efficiency Et = 75%	Per Building	Existing	2,219	20	\$5,734	100%	N/A	\$0.29	0.00
Gas	Large Office	Space Heat Boiler	Boiler = 300 and = 2,500 kBtuh - Premium Efficiency	High Efficiency - Thermal Efficiency Et = 95%	Standard Efficiency - Thermal Efficiency Et = 75%	Per Building	Existing	3,971	20	\$11,468	100%	N/A	\$0.32	17,615
Gas	Large Office	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	1,844	10	\$4,122	75%	85%	\$0.38	14,775
Gas	Large Office	Space Heat Boiler	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	5,532	15	\$29,976	15%	70%	\$5.44	0.00
Gas	Large Office	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	2,766	5	\$4,728	75%	75%	\$0.50	25,514
Gas	Large Office	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	2,766	14	\$99,366	5.0%	95%	\$4.89	0.00
Gas	Large Office	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,844	12	\$2,458	10%	60%	\$0.20	1,557
Gas	Large Office	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,146	25	\$13,458	45%	65%	\$0.64	7,039
Gas	Large Office	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	459	25	\$6,483	25%	85%	\$1.44	0.00
Gas	Large Office	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4,434	25	\$24,026	15%	85%	\$0.55	6,540
Gas	Large Office	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	825	25	\$7,413	15%	95%	\$0.91	0.00
Gas	Large Office	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	5,864	25	\$59,067	10%	45%	\$1.03	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Office	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,305	7	\$48,037	90%	95%	\$4.62	0.00
Gas	Large Office	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	922	3	\$1,528	95%	50%	\$0.76	0.00
Gas	Large Office	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	76	10	\$1,051	95%	65%	\$2.32	0.00
Gas	Large Office	Space Heat Boiler	Boiler = 300 and = 2,500 kBtu/h - High Efficiency	High Efficiency - Thermal Efficiency Et = 85%	Standard Efficiency - Thermal Efficiency Et = 75%	Per Building	New	2,219	20	\$5,734	100%	N/A	\$0.29	0.00
Gas	Large Office	Space Heat Boiler	Boiler = 300 and = 2,500 kBtu/h - Premium Efficiency	High Efficiency - Thermal Efficiency Et = 95%	Standard Efficiency - Thermal Efficiency Et = 75%	Per Building	New	3,971	20	\$11,468	100%	N/A	\$0.32	2,494
Gas	Large Office	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	1,776	10	\$4,122	95%	85%	\$0.39	1,720
Gas	Large Office	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,023	7	\$55,981	95%	95%	\$12.13	0.00
Gas	Large Office	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	2,665	5	\$4,728	0.0%	25%	\$0.52	0.00
Gas	Large Office	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	2,665	14	\$99,366	5.0%	95%	\$5.08	0.00
Gas	Large Office	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	442	25	\$6,483	75%	85%	\$1.49	0.00
Gas	Large Office	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	795	25	\$7,413	15%	95%	\$0.95	0.00
Gas	Large Office	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,153	25	\$6,180	95%	85%	\$0.29	1,867
Gas	Large Office	Space Heat Furnace	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	948	15	\$4,728	75%	95%	\$0.65	43,698
Gas	Large Office	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	5,692	15	\$29,976	15%	70%	\$5.28	0.00
Gas	Large Office	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	2,846	5	\$4,728	75%	75%	\$0.48	123,917
Gas	Large Office	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	474	18	\$18,156	45%	85%	\$4.53	0.00
Gas	Large Office	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	2,846	14	\$99,366	5.0%	95%	\$4.76	0.00
Gas	Large Office	Space Heat Furnace	Furnace < 250 kBtu/h - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	1,193	20	\$12,277	12%	N/A	\$1.15	0.00
Gas	Large Office	Space Heat Furnace	Furnace < 250 kBtu/h - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	414	20	\$3,790	12%	N/A	\$1.02	0.00
Gas	Large Office	Space Heat Furnace	Furnace < 250 kBtu/h - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	812	20	\$7,875	12%	N/A	\$1.09	0.00
Gas	Large Office	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,897	12	\$2,458	10%	60%	\$0.19	7,616
Gas	Large Office	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,208	25	\$13,458	45%	65%	\$0.62	36,223
Gas	Large Office	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	472	25	\$6,483	25%	85%	\$1.40	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Office	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	569	20	\$5,287	45%	60%	\$1.04	8,963
Gas	Large Office	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	341	20	\$938	45%	85%	\$0.31	8,687
Gas	Large Office	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	4,562	25	\$24,026	15%	85%	\$0.54	33,652
Gas	Large Office	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	849	25	\$7,413	15%	95%	\$0.89	0.00
Gas	Large Office	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	6,033	25	\$59,067	10%	45%	\$1.00	0.00
Gas	Large Office	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	2,371	7	\$48,037	90%	95%	\$4.49	0.00
Gas	Large Office	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	948	3	\$1,702	95%	50%	\$0.82	0.00
Gas	Large Office	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,074	7	\$55,981	95%	95%	\$11.56	0.00
Gas	Large Office	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	2,797	5	\$4,728	0.0%	25%	\$0.49	0.00
Gas	Large Office	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	2,797	14	\$99,366	5.0%	95%	\$4.84	0.00
Gas	Large Office	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	1,193	20	\$12,277	12%	N/A	\$1.15	0.00
Gas	Large Office	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	414	20	\$3,790	12%	N/A	\$1.02	0.00
Gas	Large Office	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	812	20	\$7,875	12%	N/A	\$1.09	0.00
Gas	Large Office	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	464	25	\$6,483	75%	85%	\$1.42	0.00
Gas	Large Office	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	335	20	\$938	45%	85%	\$0.31	687
Gas	Large Office	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	834	25	\$7,413	15%	95%	\$0.90	0.00
Gas	Large Office	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,260	25	\$6,180	95%	85%	\$0.28	9,701
Gas	Large Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	32	10	\$21,015	55%	80%	\$109.01	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.61	12	\$37	95%	35%	\$9.30	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	6	12	\$302	75%	75%	\$6.93	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	131	25	\$9,403	2.5%	95%	\$7.31	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	25	9	\$7	95%	75%	\$0.05	368
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	10	9	\$0.00	95%	50%	\$0.00	101
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	3	9	\$22	95%	25%	\$1.06	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	9	10	\$22	95%	85%	\$0.39	162

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	7	10	\$60	95%	25%	\$1.29	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	16	10	\$385	75%	85%	\$4.00	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	188	13	\$11,128	100%	N/A	\$8.40	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	247	13	\$17,013	100%	N/A	\$9.81	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	138	13	\$7,421	100%	N/A	\$7.65	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	96	13	\$4,765	100%	N/A	\$7.01	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	32	10	\$21,015	55%	80%	\$109.51	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.61	12	\$37	95%	35%	\$9.30	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	130	25	\$7,519	2.5%	95%	\$5.87	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	25	9	\$7	95%	75%	\$0.06	34
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	10	9	\$0.00	95%	50%	\$0.00	9
Gas	Large Office	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	9	10	\$22	95%	85%	\$0.39	15
Gas	Large Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	16	10	\$385	75%	85%	\$4.02	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	188	13	\$11,128	100%	N/A	\$8.40	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	247	13	\$17,013	100%	N/A	\$9.81	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	138	13	\$7,421	100%	N/A	\$7.65	0.00
Gas	Large Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	96	13	\$4,765	100%	N/A	\$7.01	0.00
Gas	Large Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	32	10	\$21,015	75%	80%	\$108.28	0.00
Gas	Large Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.61	12	\$37	75%	35%	\$9.30	0.00
Gas	Large Office	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	6	12	\$302	75%	75%	\$6.89	0.00
Gas	Large Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	131	25	\$9,403	2.5%	95%	\$7.26	0.00
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	25	9	\$7	95%	75%	\$0.05	606

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	10	9	\$0.00	95%	50%	\$0.00	166
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	3	9	\$22	95%	25%	\$1.05	0.00
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	9	10	\$22	95%	85%	\$0.39	265
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	7	10	\$60	95%	25%	\$1.29	0.00
Gas	Large Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	16	10	\$385	75%	85%	\$3.98	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	223	13	\$8,525	100%	N/A	\$5.43	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	74	13	\$1,165	100%	N/A	\$2.22	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	22	13	\$378	100%	N/A	\$2.40	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	27	13	\$378	100%	N/A	\$1.95	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	181	13	\$4,009	100%	N/A	\$3.15	0.00
Gas	Large Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	32	10	\$21,015	75%	80%	\$108.58	0.00
Gas	Large Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.61	12	\$37	75%	35%	\$9.30	0.00
Gas	Large Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	131	25	\$7,519	2.5%	95%	\$5.82	0.00
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	25	9	\$7	95%	75%	\$0.05	58
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	10	9	\$0.00	95%	50%	\$0.00	16
Gas	Large Office	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	9	10	\$22	95%	85%	\$0.39	25
Gas	Large Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	16	10	\$385	75%	85%	\$3.99	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	223	13	\$8,525	100%	N/A	\$5.43	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	74	13	\$1,165	100%	N/A	\$2.22	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	22	13	\$378	100%	N/A	\$2.40	-0.0024607
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	27	13	\$378	100%	N/A	\$1.95	0.00
Gas	Large Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	181	13	\$4,009	100%	N/A	\$3.15	0.00
Gas	Large Retail	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	6	12	\$13	7.0%	90%	\$0.31	192

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Retail	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	2	12	\$0.00	7.0%	90%	\$0.00	100
Gas	Large Retail	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	6	12	\$40	7.0%	85%	\$0.94	0.00
Gas	Large Retail	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	3	12	\$35	7.0%	70%	\$1.45	0.00
Gas	Large Retail	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	1	12	\$8	7.0%	55%	\$1.13	0.00
Gas	Large Retail	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	1	12	\$13	11%	75%	\$1.32	0.00
Gas	Large Retail	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	6	12	\$13	7.0%	90%	\$0.31	18
Gas	Large Retail	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	2	12	\$0.00	7.0%	90%	\$0.00	9
Gas	Large Retail	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	6	12	\$40	7.0%	85%	\$0.94	0.00
Gas	Large Retail	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	3	12	\$35	7.0%	70%	\$1.45	0.00
Gas	Large Retail	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	1	12	\$8	7.0%	55%	\$1.13	0.00
Gas	Large Retail	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	1	12	\$13	11%	75%	\$1.32	0.00
Gas	Large Retail	Space Heat Boiler	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	200	15	\$594	25%	95%	\$0.39	0.00
Gas	Large Retail	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	551	20	\$3,122	75%	80%	\$0.64	0.00
Gas	Large Retail	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	125	10	\$2,121	75%	20%	\$2.88	0.00
Gas	Large Retail	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	45	10	\$625	75%	65%	\$2.33	0.00
Gas	Large Retail	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	1,510	20	\$20,030	100%	N/A	\$1.49	0.00
Gas	Large Retail	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	920	20	\$11,444	100%	N/A	\$1.39	0.00
Gas	Large Retail	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	1,322	20	\$17,167	100%	N/A	\$1.46	0.00
Gas	Large Retail	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	1,002	10	\$4,118	75%	85%	\$0.70	0.00
Gas	Large Retail	Space Heat Boiler	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,007	15	\$35,799	15%	70%	\$5.90	0.00
Gas	Large Retail	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,503	5	\$2,791	75%	75%	\$0.54	0.00
Gas	Large Retail	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,503	14	\$58,675	5.0%	95%	\$5.32	0.00
Gas	Large Retail	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	451	12	\$5,454	2.5%	85%	\$1.82	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Retail	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,002	12	\$1,250	10%	60%	\$0.19	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,972	25	\$13,396	45%	65%	\$0.69	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	249	25	\$6,441	25%	85%	\$2.63	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,410	25	\$23,907	15%	85%	\$1.01	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	448	25	\$7,375	15%	95%	\$1.67	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	3,187	25	\$58,778	10%	45%	\$1.88	0.00
Gas	Large Retail	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	902	20	\$9,001	10%	95%	\$1.12	0.00
Gas	Large Retail	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,253	7	\$28,366	90%	95%	\$5.02	0.00
Gas	Large Retail	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	501	3	\$902	95%	50%	\$0.82	0.00
Gas	Large Retail	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	45	10	\$625	95%	65%	\$2.33	0.00
Gas	Large Retail	Space Heat Boiler	Boiler < 300 kBtu/h - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	1,510	20	\$20,030	100%	N/A	\$1.49	0.00
Gas	Large Retail	Space Heat Boiler	Boiler < 300 kBtu/h - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	920	20	\$11,444	100%	N/A	\$1.39	0.00
Gas	Large Retail	Space Heat Boiler	Boiler < 300 kBtu/h - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	1,322	20	\$17,167	100%	N/A	\$1.46	0.00
Gas	Large Retail	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	980	10	\$4,118	95%	85%	\$0.71	0.00
Gas	Large Retail	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	564	7	\$33,056	95%	95%	\$12.98	0.00
Gas	Large Retail	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,470	5	\$2,791	25%	25%	\$0.55	0.00
Gas	Large Retail	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,470	14	\$58,675	5.0%	95%	\$5.44	0.00
Gas	Large Retail	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	441	12	\$5,454	2.5%	85%	\$1.86	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	244	25	\$6,441	75%	85%	\$2.68	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	438	25	\$7,375	15%	95%	\$1.71	0.00
Gas	Large Retail	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,188	25	\$6,146	95%	85%	\$0.53	0.00
Gas	Large Retail	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	882	20	\$9,001	25%	95%	\$1.14	0.00
Gas	Large Retail	Space Heat Furnace	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	204	15	\$594	25%	95%	\$0.38	37,887
Gas	Large Retail	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,067	15	\$35,799	15%	70%	\$5.79	0.00
Gas	Large Retail	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,533	5	\$2,791	75%	75%	\$0.53	734,323
Gas	Large Retail	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	255	18	\$10,721	45%	85%	\$4.96	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Retail	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,533	14	\$58,675	5.0%	95%	\$5.21	0.00
Gas	Large Retail	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	460	12	\$5,454	2.5%	85%	\$1.78	6,505
Gas	Large Retail	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	642	20	\$7,250	12%	N/A	\$1.27	0.00
Gas	Large Retail	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	223	20	\$2,238	12%	N/A	\$1.12	0.00
Gas	Large Retail	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	437	20	\$4,650	12%	N/A	\$1.19	0.00
Gas	Large Retail	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	1,022	12	\$1,250	10%	60%	\$0.18	45,040
Gas	Large Retail	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,011	25	\$13,396	45%	65%	\$0.68	388,618
Gas	Large Retail	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	254	25	\$6,441	25%	85%	\$2.57	0.00
Gas	Large Retail	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	306	20	\$6,088	45%	60%	\$2.23	0.00
Gas	Large Retail	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	184	20	\$1,067	45%	85%	\$0.65	46,817
Gas	Large Retail	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,458	25	\$23,907	15%	85%	\$0.99	0.00
Gas	Large Retail	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	457	25	\$7,375	15%	95%	\$1.64	0.00
Gas	Large Retail	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	3,251	25	\$58,778	10%	45%	\$1.84	0.00
Gas	Large Retail	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,278	7	\$28,366	90%	95%	\$4.92	0.00
Gas	Large Retail	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	511	3	\$1,005	95%	50%	\$0.90	0.00
Gas	Large Retail	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	578	7	\$33,056	95%	95%	\$12.66	0.00
Gas	Large Retail	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,507	5	\$2,791	25%	25%	\$0.54	7,893
Gas	Large Retail	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,507	14	\$58,675	5.0%	95%	\$5.30	0.00
Gas	Large Retail	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	452	12	\$5,454	2.5%	85%	\$1.81	651
Gas	Large Retail	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	642	20	\$7,250	12%	N/A	\$1.27	0.00
Gas	Large Retail	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	223	20	\$2,238	12%	N/A	\$1.12	0.00
Gas	Large Retail	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	437	20	\$4,650	12%	N/A	\$1.19	0.00
Gas	Large Retail	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	250	25	\$6,441	75%	85%	\$2.62	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Retail	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	180	20	\$1,067	45%	85%	\$0.66	4,025
Gas	Large Retail	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	449	25	\$7,375	15%	95%	\$1.67	0.00
Gas	Large Retail	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,217	25	\$6,146	95%	85%	\$0.51	56,830
Gas	Large Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	13	10	\$12,409	75%	95%	\$161.04	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$67	75%	35%	\$9.25	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	1	12	\$13	20%	95%	\$1.87	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	0.98	12	\$13	20%	95%	\$2.04	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	2	12	\$142	75%	75%	\$8.19	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	52	25	\$4,400	2.5%	95%	\$8.56	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	82	20	\$9,001	10%	95%	\$12.25	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	10	9	\$0.00	95%	75%	\$0.00	999
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	4	9	\$0.00	95%	50%	\$0.00	274
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	1	9	\$26	95%	25%	\$3.13	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	1	4	\$8	95%	95%	\$1.72	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	6	10	\$393	75%	85%	\$10.20	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	75	13	\$5,213	100%	N/A	\$9.84	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	98	13	\$7,969	100%	N/A	\$11.49	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	55	13	\$3,475	100%	N/A	\$8.96	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	38	13	\$2,233	100%	N/A	\$8.22	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	13	10	\$12,409	75%	95%	\$161.78	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$67	75%	35%	\$9.25	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	1	12	\$13	20%	95%	\$1.94	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Retail	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	0.95	12	\$13	20%	95%	\$2.12	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	52	25	\$3,515	2.5%	95%	\$6.87	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	82	20	\$9,001	25%	95%	\$12.30	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	10	9	\$0.00	95%	75%	\$0.00	93
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	4	9	\$0.00	95%	50%	\$0.00	25
Gas	Large Retail	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	1	4	\$8	95%	95%	\$1.72	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	6	10	\$393	75%	85%	\$10.25	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	75	13	\$5,213	100%	N/A	\$9.84	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	98	13	\$7,969	100%	N/A	\$11.49	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	55	13	\$3,475	100%	N/A	\$8.96	0.00
Gas	Large Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	38	13	\$2,233	100%	N/A	\$8.22	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	13	10	\$12,409	25%	95%	\$159.95	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$67	75%	35%	\$9.25	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	1	12	\$13	0.0%	95%	\$1.87	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	0.98	12	\$13	0.0%	95%	\$2.04	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	2	12	\$142	75%	75%	\$8.14	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	52	25	\$4,400	2.5%	95%	\$8.50	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	83	20	\$9,001	10%	95%	\$12.16	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	10	9	\$0.00	95%	75%	\$0.00	1,642
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	4	9	\$0.00	95%	50%	\$0.00	450
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	1	9	\$26	95%	25%	\$3.10	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	1	4	\$8	95%	95%	\$1.72	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Large Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	6	10	\$393	75%	85%	\$10.13	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	89	13	\$3,989	100%	N/A	\$6.36	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	29	13	\$544	100%	N/A	\$2.60	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	8	13	\$178	100%	N/A	\$2.83	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	11	13	\$178	100%	N/A	\$2.31	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	72	13	\$1,876	100%	N/A	\$3.69	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	13	10	\$12,409	25%	95%	\$160.40	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$67	75%	35%	\$9.25	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	1	12	\$13	0.0%	95%	\$1.94	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	0.95	12	\$13	0.0%	95%	\$2.12	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	52	25	\$3,515	2.5%	95%	\$6.81	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	82	20	\$9,001	25%	95%	\$12.20	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	10	9	\$0.00	95%	75%	\$0.00	158
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	4	9	\$0.00	95%	50%	\$0.00	43
Gas	Large Retail	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	1	4	\$8	95%	95%	\$1.72	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	6	10	\$393	75%	85%	\$10.16	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	89	13	\$3,989	100%	N/A	\$6.36	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	29	13	\$544	100%	N/A	\$2.60	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	8	13	\$178	100%	N/A	\$2.83	-0.0067578
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	11	13	\$178	100%	N/A	\$2.31	0.00
Gas	Large Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	72	13	\$1,876	100%	N/A	\$3.69	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	22	12	\$50	19%	90%	\$0.35	1,691
Gas	Lodging	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	13	12	\$15	19%	60%	\$0.17	1,173
Gas	Lodging	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	44	12	\$264	19%	85%	\$0.90	0.00
Gas	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	4	12	\$43	19%	70%	\$1.37	0.00
Gas	Lodging	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	4	12	\$27	19%	55%	\$1.03	0.00
Gas	Lodging	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	10	12	\$109	11%	75%	\$1.50	0.00
Gas	Lodging	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	22	12	\$50	19%	90%	\$0.35	164
Gas	Lodging	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	13	12	\$15	19%	60%	\$0.17	113
Gas	Lodging	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	44	12	\$264	19%	85%	\$0.90	0.00
Gas	Lodging	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	4	12	\$43	19%	70%	\$1.37	0.00
Gas	Lodging	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	4	12	\$27	19%	55%	\$1.03	0.00
Gas	Lodging	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	10	12	\$109	11%	75%	\$1.50	0.00
Gas	Lodging	Pool Heat	Spa Covers	R-14	No Cover	Per Building	Existing	553	6	\$931	25%	35%	\$0.42	19,917
Gas	Lodging	Pool Heat	Swimming Pool Covers	Swimming Pool with Covers	No Cover	Per Building	Existing	3,135	5	\$1,074	50%	35%	\$0.10	243,867
Gas	Lodging	Space Heat Boiler	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	73	15	\$509	50%	95%	\$0.90	0.00
Gas	Lodging	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	135	20	\$1,779	75%	80%	\$1.48	0.00
Gas	Lodging	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	97	10	\$1,651	75%	20%	\$2.89	0.00
Gas	Lodging	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	35	10	\$483	75%	65%	\$2.32	0.00
Gas	Lodging	Space Heat Boiler	Boiler < 300 kBtu/h - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	370	20	\$11,412	100%	N/A	\$3.46	0.00
Gas	Lodging	Space Heat Boiler	Boiler < 300 kBtu/h - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	225	20	\$6,520	100%	N/A	\$3.24	0.00
Gas	Lodging	Space Heat Boiler	Boiler < 300 kBtu/h - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	324	20	\$9,780	100%	N/A	\$3.39	0.00
Gas	Lodging	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	245	10	\$4,117	75%	85%	\$2.85	0.00
Gas	Lodging	Space Heat Boiler	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	737	15	\$77,371	5.0%	70%	\$13.73	0.00
Gas	Lodging	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	368	5	\$1,590	75%	75%	\$1.26	0.00
Gas	Lodging	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	368	14	\$33,429	5.0%	95%	\$12.36	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	110	12	\$5,449	10%	85%	\$7.40	0.00
Gas	Lodging	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	245	12	\$1,356	10%	60%	\$0.83	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	285	25	\$7,184	45%	65%	\$2.56	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	61	25	\$3,456	25%	85%	\$5.75	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	858	25	\$12,824	15%	85%	\$1.52	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	109	25	\$3,957	15%	95%	\$3.67	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	781	25	\$31,528	10%	45%	\$4.11	0.00
Gas	Lodging	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	221	20	\$5,128	10%	95%	\$2.60	0.00
Gas	Lodging	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	307	7	\$16,161	90%	95%	\$11.67	0.00
Gas	Lodging	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	122	3	\$514	95%	50%	\$1.91	0.00
Gas	Lodging	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	35	10	\$483	95%	65%	\$2.32	0.00
Gas	Lodging	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	370	20	\$11,412	100%	N/A	\$3.46	0.00
Gas	Lodging	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	225	20	\$6,520	100%	N/A	\$3.24	0.00
Gas	Lodging	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	324	20	\$9,780	100%	N/A	\$3.39	0.00
Gas	Lodging	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	240	10	\$4,117	95%	85%	\$2.91	0.00
Gas	Lodging	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	138	7	\$18,833	95%	95%	\$30.17	0.00
Gas	Lodging	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	360	5	\$1,590	25%	25%	\$1.29	0.00
Gas	Lodging	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	360	14	\$33,429	5.0%	95%	\$12.64	0.00
Gas	Lodging	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	108	12	\$5,449	10%	85%	\$7.57	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	59	25	\$3,456	75%	85%	\$5.88	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	107	25	\$3,957	15%	95%	\$3.75	0.00
Gas	Lodging	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	291	25	\$3,295	95%	85%	\$1.15	0.00
Gas	Lodging	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	216	20	\$5,128	25%	95%	\$2.66	0.00
Gas	Lodging	Space Heat Furnace	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	75	15	\$509	50%	95%	\$0.89	0.00
Gas	Lodging	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	751	15	\$77,371	5.0%	70%	\$13.46	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	375	5	\$1,590	75%	75%	\$1.23	0.00
Gas	Lodging	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	62	18	\$6,108	45%	85%	\$11.53	0.00
Gas	Lodging	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	375	14	\$33,429	5.0%	95%	\$12.12	0.00
Gas	Lodging	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	112	12	\$5,449	10%	85%	\$7.25	0.00
Gas	Lodging	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	157	20	\$4,130	3.3%	N/A	\$2.94	0.00
Gas	Lodging	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	54	20	\$1,275	3.3%	N/A	\$2.61	0.00
Gas	Lodging	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	107	20	\$2,649	3.3%	N/A	\$2.77	0.00
Gas	Lodging	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	250	12	\$1,356	10%	60%	\$0.81	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	291	25	\$7,184	45%	65%	\$2.51	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	62	25	\$3,456	25%	85%	\$5.64	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	75	20	\$1,392	45%	60%	\$2.08	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	45	20	\$244	45%	85%	\$0.61	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	875	25	\$12,824	15%	85%	\$1.49	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	112	25	\$3,957	15%	95%	\$3.59	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	796	25	\$31,528	10%	45%	\$4.03	0.00
Gas	Lodging	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	313	7	\$16,161	90%	95%	\$11.44	0.00
Gas	Lodging	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	125	3	\$572	95%	50%	\$2.09	0.00
Gas	Lodging	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	141	7	\$18,833	95%	95%	\$29.44	0.00
Gas	Lodging	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	369	5	\$1,590	25%	25%	\$1.26	0.00
Gas	Lodging	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	369	14	\$33,429	5.0%	95%	\$12.33	0.00
Gas	Lodging	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	110	12	\$5,449	10%	85%	\$7.38	0.00
Gas	Lodging	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	157	20	\$4,130	3.3%	N/A	\$2.94	0.00
Gas	Lodging	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	54	20	\$1,275	3.3%	N/A	\$2.61	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Space Heat Furnace	Furnace < 250 kBtu/h - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	107	20	\$2,649	3.3%	N/A	\$2.77	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	61	25	\$3,456	75%	85%	\$5.74	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	44	20	\$244	45%	85%	\$0.62	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	110	25	\$3,957	15%	95%	\$3.66	0.00
Gas	Lodging	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	298	25	\$3,295	95%	85%	\$1.12	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	46	9	\$402	25%	95%	\$1.59	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	21	14	\$165	5.0%	95%	\$1.03	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	359	10	\$7,070	55%	80%	\$3.34	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$71	10%	35%	\$9.26	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	12	12	\$160	60%	95%	\$1.96	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	11	12	\$157	60%	95%	\$2.11	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	71	12	\$509	75%	75%	\$1.06	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	1,439	25	\$15,998	2.5%	95%	\$1.13	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	2,266	20	\$5,128	10%	95%	\$0.25	33,111
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	277	9	\$10	95%	75%	\$0.01	38,203
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	114	9	\$5	95%	50%	\$0.01	10,487
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	43	9	\$211	95%	25%	\$0.90	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	68	4	\$409	95%	95%	\$2.10	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	149	10	\$185	95%	85%	\$0.21	23,303
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	120	10	\$465	95%	25%	\$0.66	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	179	10	\$3,140	75%	85%	\$2.97	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	2,075	13	\$18,953	100%	N/A	\$1.30	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	2,717	13	\$28,968	100%	N/A	\$1.52	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	1,520	13	\$12,636	100%	N/A	\$1.19	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	1,064	13	\$8,121	100%	N/A	\$1.09	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	46	9	\$402	25%	95%	\$1.59	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	21	14	\$165	5.0%	95%	\$1.03	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	358	10	\$7,070	55%	80%	\$3.35	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$71	10%	35%	\$9.26	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	11	12	\$152	60%	95%	\$1.94	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	10	12	\$152	60%	95%	\$2.12	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	1,432	25	\$12,799	2.5%	95%	\$0.91	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	2,256	20	\$5,128	25%	95%	\$0.26	4,328
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	276	9	\$10	95%	75%	\$0.01	3,577
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	113	9	\$5	95%	50%	\$0.01	981
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	68	4	\$409	95%	95%	\$2.10	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	149	10	\$185	95%	85%	\$0.21	2,192
Gas	Lodging	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	179	10	\$3,140	75%	85%	\$2.98	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	2,075	13	\$18,953	100%	N/A	\$1.30	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	2,717	13	\$28,968	100%	N/A	\$1.52	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	1,520	13	\$12,636	100%	N/A	\$1.19	0.00
Gas	Lodging	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	1,064	13	\$8,121	100%	N/A	\$1.09	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	46	9	\$402	25%	95%	\$1.59	0.00
Gas	Lodging	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	21	14	\$165	5.0%	95%	\$1.03	0.00
Gas	Lodging	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	362	10	\$7,070	25%	80%	\$3.32	0.00
Gas	Lodging	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$71	75%	35%	\$9.26	0.00
Gas	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	12	12	\$160	50%	95%	\$1.96	0.00
Gas	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	11	12	\$157	50%	95%	\$2.11	0.00
Gas	Lodging	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	72	12	\$509	75%	75%	\$1.05	0.00
Gas	Lodging	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	1,448	25	\$15,998	2.5%	95%	\$1.12	0.00
Gas	Lodging	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	2,281	20	\$5,128	10%	95%	\$0.25	43,632
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	279	9	\$10	95%	75%	\$0.01	50,342
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	115	9	\$5	95%	50%	\$0.01	13,819
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	43	9	\$211	95%	25%	\$0.89	0.00
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	68	4	\$409	95%	95%	\$2.10	0.00
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	149	10	\$185	95%	85%	\$0.21	30,501
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	120	10	\$465	95%	25%	\$0.66	0.00
Gas	Lodging	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	181	10	\$3,140	75%	85%	\$2.95	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	2,459	13	\$14,512	100%	N/A	\$0.84	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	820	13	\$1,985	100%	N/A	\$0.34	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	247	13	\$651	100%	N/A	\$0.38	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	303	13	\$651	100%	N/A	\$0.31	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	1,993	13	\$6,828	100%	N/A	\$0.49	293,175

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Lodging	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	46	9	\$402	25%	95%	\$1.59	0.00
Gas	Lodging	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	21	14	\$165	5.0%	95%	\$1.03	0.00
Gas	Lodging	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	361	10	\$7,070	25%	80%	\$3.33	0.00
Gas	Lodging	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$71	75%	35%	\$9.26	0.00
Gas	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	11	12	\$152	50%	95%	\$1.94	0.00
Gas	Lodging	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	10	12	\$152	50%	95%	\$2.12	0.00
Gas	Lodging	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	1,444	25	\$12,799	2.5%	95%	\$0.90	0.00
Gas	Lodging	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	2,275	20	\$5,128	25%	95%	\$0.25	5.533
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	279	9	\$10	95%	75%	\$0.01	4,534
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	114	9	\$5	95%	50%	\$0.01	1,244
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	68	4	\$409	95%	95%	\$2.10	0.00
Gas	Lodging	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	149	10	\$185	95%	85%	\$0.21	2,754
Gas	Lodging	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	180	10	\$3,140	75%	85%	\$2.95	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	2,459	13	\$14,512	100%	N/A	\$0.84	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	820	13	\$1,985	100%	N/A	\$0.34	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	247	13	\$651	100%	N/A	\$0.38	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	303	13	\$651	100%	N/A	\$0.31	0.00
Gas	Lodging	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	1,993	13	\$6,828	100%	N/A	\$0.49	31,428
Gas	Miscellaneous	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	6	12	\$14	1.0%	90%	\$0.33	88
Gas	Miscellaneous	Cooking	Convection Ovens	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	2	12	\$1	1.0%	90%	\$0.13	46
Gas	Miscellaneous	Cooking	Conveyor Ovens	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	6	12	\$38	1.0%	85%	\$0.90	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	3	12	\$34	1.0%	70%	\$1.39	0.00
Gas	Miscellaneous	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	1	12	\$7	1.0%	55%	\$1.00	0.00
Gas	Miscellaneous	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	1	12	\$14	1.0%	75%	\$1.47	0.00
Gas	Miscellaneous	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	6	12	\$14	1.0%	90%	\$0.33	8
Gas	Miscellaneous	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	2	12	\$1	1.0%	90%	\$0.13	4
Gas	Miscellaneous	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	6	12	\$38	1.0%	85%	\$0.90	0.00
Gas	Miscellaneous	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	3	12	\$34	1.0%	70%	\$1.39	0.00
Gas	Miscellaneous	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	1	12	\$7	1.0%	55%	\$1.00	0.00
Gas	Miscellaneous	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	1	12	\$14	1.0%	75%	\$1.47	0.00
Gas	Miscellaneous	Pool Heat	Spa Covers	R-14	No Cover	Per Building	Existing	190	6	\$931	25%	35%	\$1.23	0.00
Gas	Miscellaneous	Pool Heat	Swimming Pool Covers	Swimming Pool with Cover	No Cover	Per Building	Existing	1,079	5	\$1,074	50%	35%	\$0.29	177,700
Gas	Miscellaneous	Space Heat Boiler	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	69	15	\$219	50%	95%	\$0.41	12,829
Gas	Miscellaneous	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	191	20	\$612	75%	80%	\$0.36	43,858
Gas	Miscellaneous	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	41	10	\$709	75%	20%	\$2.89	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	15	10	\$207	75%	65%	\$2.32	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	524	20	\$3,929	100%	N/A	\$0.84	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	319	20	\$2,245	100%	N/A	\$0.79	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	459	20	\$3,368	100%	N/A	\$0.82	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	348	10	\$2,058	75%	85%	\$1.00	0.00
Gas	Miscellaneous	Space Heat Boiler	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,044	15	\$26,640	15%	70%	\$3.33	0.00
Gas	Miscellaneous	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	522	5	\$547	75%	75%	\$0.31	141,090
Gas	Miscellaneous	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	522	14	\$11,510	5.0%	95%	\$3.00	0.00
Gas	Miscellaneous	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	156	12	\$5,450	1.0%	85%	\$5.22	0.00
Gas	Miscellaneous	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	348	12	\$116	10%	60%	\$0.05	8,612

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	405	25	\$4,615	45%	65%	\$1.16	0.00
Gas	Miscellaneous	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	86	25	\$2,219	25%	85%	\$2.61	0.00
Gas	Miscellaneous	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,216	25	\$8,238	15%	85%	\$0.69	53,894
Gas	Miscellaneous	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	155	25	\$2,541	15%	95%	\$1.66	0.00
Gas	Miscellaneous	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,107	25	\$20,251	10%	45%	\$1.86	0.00
Gas	Miscellaneous	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	313	20	\$1,766	10%	95%	\$0.63	12,484
Gas	Miscellaneous	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	435	7	\$5,565	90%	95%	\$2.84	0.00
Gas	Miscellaneous	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	174	3	\$177	95%	50%	\$0.46	29,936
Gas	Miscellaneous	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	15	10	\$207	95%	65%	\$2.32	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	524	20	\$3,929	100%	N/A	\$0.84	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	319	20	\$2,245	100%	N/A	\$0.79	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	459	20	\$3,368	100%	N/A	\$0.82	0.00
Gas	Miscellaneous	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	340	10	\$2,058	95%	85%	\$1.03	0.00
Gas	Miscellaneous	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	196	7	\$6,485	95%	95%	\$7.33	0.00
Gas	Miscellaneous	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	510	5	\$547	25%	25%	\$0.31	1,493
Gas	Miscellaneous	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	510	14	\$11,510	5.0%	95%	\$3.07	0.00
Gas	Miscellaneous	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	153	12	\$5,450	1.0%	85%	\$5.34	0.00
Gas	Miscellaneous	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	84	25	\$2,219	75%	85%	\$2.66	0.00
Gas	Miscellaneous	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	152	25	\$2,541	15%	95%	\$1.70	0.00
Gas	Miscellaneous	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	412	25	\$2,117	95%	85%	\$0.52	10,825
Gas	Miscellaneous	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	306	20	\$1,766	25%	95%	\$0.65	1,631
Gas	Miscellaneous	Space Heat Furnace	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	71	15	\$219	50%	95%	\$0.40	90,860
Gas	Miscellaneous	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,065	15	\$26,640	15%	70%	\$3.27	0.00
Gas	Miscellaneous	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	532	5	\$547	75%	75%	\$0.30	966,217
Gas	Miscellaneous	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	88	18	\$2,103	45%	85%	\$2.80	0.00
Gas	Miscellaneous	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	532	14	\$11,510	5.0%	95%	\$2.94	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	159	12	\$5,450	1.0%	85%	\$5.12	0.00
Gas	Miscellaneous	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	223	20	\$1,422	12%	N/A	\$0.71	770
Gas	Miscellaneous	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	77	20	\$439	12%	N/A	\$0.63	0.00
Gas	Miscellaneous	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	152	20	\$912	12%	N/A	\$0.67	418
Gas	Miscellaneous	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	355	12	\$116	10%	60%	\$0.05	59,390
Gas	Miscellaneous	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	413	25	\$4,615	45%	65%	\$1.14	0.00
Gas	Miscellaneous	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	88	25	\$2,219	25%	85%	\$2.55	0.00
Gas	Miscellaneous	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	106	20	\$469	45%	60%	\$0.49	71,783
Gas	Miscellaneous	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	63	20	\$82	45%	85%	\$0.14	67,742
Gas	Miscellaneous	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,240	25	\$8,238	15%	85%	\$0.68	391,635
Gas	Miscellaneous	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	158	25	\$2,541	15%	95%	\$1.63	0.00
Gas	Miscellaneous	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,129	25	\$20,251	10%	45%	\$1.83	0.00
Gas	Miscellaneous	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	443	7	\$5,565	90%	95%	\$2.78	0.00
Gas	Miscellaneous	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	177	3	\$197	95%	50%	\$0.51	202,910
Gas	Miscellaneous	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	201	7	\$6,485	95%	95%	\$7.15	0.00
Gas	Miscellaneous	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	523	5	\$547	25%	25%	\$0.31	10,213
Gas	Miscellaneous	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	523	14	\$11,510	5.0%	95%	\$3.00	0.00
Gas	Miscellaneous	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	157	12	\$5,450	1.0%	85%	\$5.21	0.00
Gas	Miscellaneous	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	223	20	\$1,422	12%	N/A	\$0.71	8
Gas	Miscellaneous	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	77	20	\$439	12%	N/A	\$0.63	0.00
Gas	Miscellaneous	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	152	20	\$912	12%	N/A	\$0.67	4
Gas	Miscellaneous	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	86	25	\$2,219	75%	85%	\$2.60	0.00
Gas	Miscellaneous	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	62	20	\$82	45%	85%	\$0.15	5,294

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	156	25	\$2,541	15%	95%	\$1.66	0.00
Gas	Miscellaneous	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	423	25	\$2,117	95%	85%	\$0.51	74,046
Gas	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	1	9	\$14	1.0%	95%	\$1.65	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	0.77	14	\$6	0.5%	95%	\$1.07	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	6	10	\$2,434	55%	95%	\$61.48	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.13	12	\$8	75%	35%	\$9.56	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	0.20	12	\$2	1.0%	95%	\$1.88	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	0.19	12	\$2	1.0%	95%	\$2.05	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	1	12	\$50	75%	75%	\$5.67	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	26	25	\$1,600	2.5%	95%	\$6.06	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	42	20	\$1,766	10%	95%	\$4.68	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	5	9	\$0.00	95%	75%	\$0.00	3,024
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	2	9	\$0.00	95%	50%	\$0.00	830
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.80	9	\$7	95%	25%	\$1.59	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	45	4	\$273	95%	95%	\$2.10	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	2	10	\$6	95%	85%	\$0.39	1,754
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2	10	\$15	95%	25%	\$1.25	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	3	10	\$106	75%	95%	\$5.36	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	15	10	\$89	2.5%	95%	\$0.99	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	38	13	\$1,894	100%	N/A	\$6.96	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	50	13	\$2,896	100%	N/A	\$8.13	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	28	13	\$1,263	100%	N/A	\$6.34	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	19	13	\$812	100%	N/A	\$5.82	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	1	9	\$14	1.0%	95%	\$1.65	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	0.77	14	\$6	0.5%	95%	\$1.07	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	6	10	\$2,434	55%	95%	\$61.76	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.13	12	\$8	75%	35%	\$9.56	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	0.20	12	\$2	1.0%	95%	\$1.91	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	0.18	12	\$2	1.0%	95%	\$2.09	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	26	25	\$1,280	2.5%	95%	\$4.87	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	42	20	\$1,766	25%	95%	\$4.70	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	5	9	\$0.00	95%	75%	\$0.00	283
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	2	9	\$0.00	95%	50%	\$0.00	77
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	45	4	\$273	95%	95%	\$2.10	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	2	10	\$6	95%	85%	\$0.39	165
Gas	Miscellaneous	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	3	10	\$106	75%	95%	\$5.38	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	15	10	\$89	2.5%	95%	\$0.99	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	38	13	\$1,894	100%	N/A	\$6.96	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	50	13	\$2,896	100%	N/A	\$8.13	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	28	13	\$1,263	100%	N/A	\$6.34	0.00
Gas	Miscellaneous	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	19	13	\$812	100%	N/A	\$5.82	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	1	9	\$14	1.0%	95%	\$1.65	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	0.77	14	\$6	0.5%	95%	\$1.07	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	6	10	\$2,434	25%	95%	\$61.06	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.13	12	\$8	75%	35%	\$9.56	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	0.20	12	\$2	5.0%	95%	\$1.88	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	0.19	12	\$2	5.0%	95%	\$2.05	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	1	12	\$50	75%	75%	\$5.63	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	27	25	\$1,600	2.5%	95%	\$6.02	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	42	20	\$1,766	10%	95%	\$4.65	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	5	9	\$0.00	95%	75%	\$0.00	4,972
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	2	9	\$0.00	95%	50%	\$0.00	1,364
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.81	9	\$7	95%	25%	\$1.58	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	45	4	\$273	95%	95%	\$2.10	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	2	10	\$6	95%	85%	\$0.39	2,864
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	2	10	\$15	95%	25%	\$1.25	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	3	10	\$106	75%	95%	\$5.32	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	15	10	\$89	2.5%	95%	\$0.98	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	46	13	\$1,452	100%	N/A	\$4.50	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	15	13	\$198	100%	N/A	\$1.85	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	4	13	\$64	100%	N/A	\$2.00	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	5	13	\$64	100%	N/A	\$1.63	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	37	13	\$683	100%	N/A	\$2.61	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	1	9	\$14	1.0%	95%	\$1.65	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	0.77	14	\$6	0.5%	95%	\$1.07	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	6	10	\$2,434	25%	95%	\$61.24	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.13	12	\$8	75%	35%	\$9.56	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	0.20	12	\$2	5.0%	95%	\$1.91	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	0.18	12	\$2	5.0%	95%	\$2.09	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	27	25	\$1,280	2.5%	95%	\$4.83	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	42	20	\$1,766	25%	95%	\$4.66	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	5	9	\$0.00	95%	75%	\$0.00	478
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	2	9	\$0.00	95%	50%	\$0.00	131
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	45	4	\$273	95%	95%	\$2.10	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	2	10	\$6	95%	85%	\$0.39	276
Gas	Miscellaneous	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	3	10	\$106	75%	95%	\$5.33	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	15	10	\$89	2.5%	95%	\$0.99	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	46	13	\$1,452	100%	N/A	\$4.50	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	15	13	\$198	100%	N/A	\$1.85	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	4	13	\$64	100%	N/A	\$2.00	-0.0201038
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	5	13	\$64	100%	N/A	\$1.63	0.00
Gas	Miscellaneous	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	37	13	\$683	100%	N/A	\$2.61	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Restaurant	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	321	12	\$722	40%	90%	\$0.34	89,414
Gas	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	201	12	\$215	40%	60%	\$0.16	62,031
Gas	Restaurant	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	642	12	\$3,847	40%	85%	\$0.90	0.00
Gas	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	146	12	\$1,350	40%	70%	\$1.39	0.00
Gas	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	59	12	\$400	40%	45%	\$1.01	0.00
Gas	Restaurant	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	159	12	\$1,571	39%	75%	\$1.48	0.00
Gas	Restaurant	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	321	12	\$722	40%	90%	\$0.34	8,675
Gas	Restaurant	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	201	12	\$215	40%	60%	\$0.16	6,018
Gas	Restaurant	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	642	12	\$3,847	40%	85%	\$0.90	0.00
Gas	Restaurant	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	146	12	\$1,350	40%	70%	\$1.39	0.00
Gas	Restaurant	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	59	12	\$400	40%	45%	\$1.01	0.00
Gas	Restaurant	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	159	12	\$1,571	39%	75%	\$1.48	0.00
Gas	Restaurant	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	48	20	\$290	75%	80%	\$0.67	1,721
Gas	Restaurant	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	28	10	\$488	75%	20%	\$2.88	0.00
Gas	Restaurant	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	10	10	\$143	75%	65%	\$2.33	0.00
Gas	Restaurant	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	132	20	\$1,865	100%	N/A	\$1.58	0.00
Gas	Restaurant	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	80	20	\$1,065	100%	N/A	\$1.48	0.00
Gas	Restaurant	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	116	20	\$1,598	100%	N/A	\$1.55	0.00
Gas	Restaurant	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	87	10	\$2,058	75%	85%	\$3.98	0.00
Gas	Restaurant	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	131	14	\$5,463	5.0%	95%	\$5.64	0.00
Gas	Restaurant	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	39	12	\$5,449	65%	85%	\$20.67	0.00
Gas	Restaurant	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	87	12	\$169	10%	60%	\$0.29	309
Gas	Restaurant	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	102	25	\$2,190	45%	65%	\$2.18	0.00
Gas	Restaurant	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	21	25	\$1,053	25%	85%	\$4.89	0.00
Gas	Restaurant	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	211	25	\$3,909	15%	85%	\$1.88	0.00

Table F.2. Commercial Measures Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Restaurant	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	39	25	\$1,206	15%	95%	\$3.12	0.00
Gas	Restaurant	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	279	25	\$9,611	10%	45%	\$3.50	0.00
Gas	Restaurant	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	79	20	\$838	10%	95%	\$1.19	0.00
Gas	Restaurant	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	109	7	\$2,640	90%	95%	\$5.33	0.00
Gas	Restaurant	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	43	3	\$84	95%	50%	\$0.88	0.00
Gas	Restaurant	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	10	10	\$143	95%	65%	\$2.33	0.00
Gas	Restaurant	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	132	20	\$1,865	100%	N/A	\$1.58	0.00
Gas	Restaurant	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	80	20	\$1,065	100%	N/A	\$1.48	0.00
Gas	Restaurant	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	116	20	\$1,598	100%	N/A	\$1.55	0.00
Gas	Restaurant	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	86	10	\$2,058	95%	85%	\$4.07	0.00
Gas	Restaurant	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	49	7	\$3,077	95%	95%	\$13.77	0.00
Gas	Restaurant	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	129	14	\$5,463	5.0%	95%	\$5.77	0.00
Gas	Restaurant	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	38	12	\$5,449	65%	85%	\$21.13	0.00
Gas	Restaurant	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	21	25	\$1,053	75%	85%	\$5.00	0.00
Gas	Restaurant	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	38	25	\$1,206	15%	95%	\$3.19	0.00
Gas	Restaurant	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	104	25	\$1,004	95%	85%	\$0.98	0.00
Gas	Restaurant	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	77	20	\$838	25%	95%	\$1.22	0.00
Gas	Restaurant	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	22	18	\$998	45%	85%	\$5.26	0.00
Gas	Restaurant	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	134	14	\$5,463	5.0%	95%	\$5.53	0.00
Gas	Restaurant	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	40	12	\$5,449	65%	85%	\$20.26	0.00
Gas	Restaurant	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	56	20	\$675	12%	N/A	\$1.34	0.00
Gas	Restaurant	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	19	20	\$208	12%	N/A	\$1.19	0.00
Gas	Restaurant	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	38	20	\$432	12%	N/A	\$1.26	0.00

Table F.2. Commercial Measures as Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Restaurant	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	89	12	\$169	10%	60%	\$0.28	3,245
Gas	Restaurant	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	104	25	\$2,190	45%	65%	\$2.14	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	22	25	\$1,053	25%	85%	\$4.80	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	26	20	\$437	45%	60%	\$1.83	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	16	20	\$76	45%	85%	\$0.53	3,702
Gas	Restaurant	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	215	25	\$3,909	15%	85%	\$1.85	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	40	25	\$1,206	15%	95%	\$3.06	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	285	25	\$9,611	10%	45%	\$3.43	0.00
Gas	Restaurant	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	112	7	\$2,640	90%	95%	\$5.22	0.00
Gas	Restaurant	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	44	3	\$93	95%	50%	\$0.95	0.00
Gas	Restaurant	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	50	7	\$3,077	95%	95%	\$13.44	0.00
Gas	Restaurant	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	132	14	\$5,463	5.0%	95%	\$5.63	0.00
Gas	Restaurant	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	39	12	\$5,449	65%	85%	\$20.62	0.00
Gas	Restaurant	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	56	20	\$675	12%	N/A	\$1.34	0.00
Gas	Restaurant	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	19	20	\$208	12%	N/A	\$1.19	0.00
Gas	Restaurant	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	38	20	\$432	12%	N/A	\$1.26	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	21	25	\$1,053	75%	85%	\$4.88	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	15	20	\$76	45%	85%	\$0.54	292
Gas	Restaurant	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	39	25	\$1,206	15%	95%	\$3.11	0.00
Gas	Restaurant	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	106	25	\$1,004	95%	85%	\$0.96	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	87	10	\$1,155	75%	95%	\$2.24	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$73	20%	35%	\$9.45	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	128	12	\$1,654	75%	95%	\$1.94	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Restaurant	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	117	12	\$1,654	75%	95%	\$2.12	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	17	12	\$70	75%	75%	\$0.60	2,481
Gas	Restaurant	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	351	25	\$2,200	2.5%	95%	\$0.64	1,678
Gas	Restaurant	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	553	20	\$838	10%	95%	\$0.17	11,326
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	67	9	\$0.41	95%	75%	\$0.00	13,068
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	27	9	\$0.00	95%	50%	\$0.00	3,587
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	10	9	\$16	95%	25%	\$0.29	676
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	43	4	\$259	95%	75%	\$2.10	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	43	10	\$247	75%	75%	\$0.96	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	200	10	\$922	45%	95%	\$0.78	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	506	13	\$2,606	100%	N/A	\$0.73	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	663	13	\$3,983	100%	N/A	\$0.86	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	371	13	\$1,737	100%	N/A	\$0.67	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	259	13	\$1,117	100%	N/A	\$0.61	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	87	10	\$1,155	75%	95%	\$2.25	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$73	20%	35%	\$9.45	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	123	12	\$1,593	75%	95%	\$1.94	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	113	12	\$1,593	75%	95%	\$2.12	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	349	25	\$1,760	2.5%	95%	\$0.51	84
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	550	20	\$838	25%	95%	\$0.17	1,493
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heat Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	67	9	\$0.41	95%	75%	\$0.00	1,223

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Restaurant	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	27	9	\$0.00	95%	50%	\$0.00	335
Gas	Restaurant	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	43	4	\$259	95%	75%	\$2.10	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	43	10	\$247	75%	75%	\$0.96	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	199	10	\$922	45%	95%	\$0.79	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	506	13	\$2,606	100%	N/A	\$0.73	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	663	13	\$3,983	100%	N/A	\$0.86	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	371	13	\$1,737	100%	N/A	\$0.67	0.00
Gas	Restaurant	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	259	13	\$1,117	100%	N/A	\$0.61	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	88	10	\$1,155	75%	95%	\$2.22	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$73	75%	35%	\$9.45	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	128	12	\$1,654	85%	95%	\$1.94	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	117	12	\$1,654	85%	95%	\$2.12	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	17	12	\$70	75%	75%	\$0.60	3,062
Gas	Restaurant	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	353	25	\$2,200	2.5%	95%	\$0.63	2,071
Gas	Restaurant	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	557	20	\$838	10%	95%	\$0.17	13,981
Gas	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	68	9	\$0.41	95%	75%	\$0.00	16,132
Gas	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	28	9	\$0.00	95%	50%	\$0.00	4,428
Gas	Restaurant	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	10	9	\$16	95%	25%	\$0.29	835
Gas	Restaurant	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	43	4	\$259	95%	75%	\$2.10	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	44	10	\$247	75%	75%	\$0.95	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	201	10	\$922	25%	95%	\$0.78	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	600	13	\$1,995	100%	N/A	\$0.47	128,287
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	200	13	\$272	100%	N/A	\$0.19	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	60	13	\$89	100%	N/A	\$0.21	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	74	13	\$89	100%	N/A	\$0.17	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	486	13	\$939	100%	N/A	\$0.28	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	88	10	\$1,155	75%	95%	\$2.23	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$73	75%	35%	\$9.45	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	123	12	\$1,593	85%	95%	\$1.94	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	113	12	\$1,593	85%	95%	\$2.12	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	352	25	\$1,760	2.5%	95%	\$0.51	97
Gas	Restaurant	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	555	20	\$838	25%	95%	\$0.17	1,729
Gas	Restaurant	Water Heat Le 55 Gal	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	Per Building	New	68	9	\$0.41	95%	75%	\$0.00	1,417
Gas	Restaurant	Water Heat Le 55 Gal	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	Per Building	New	28	9	\$0.00	95%	50%	\$0.00	389
Gas	Restaurant	Water Heat Le 55 Gal	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	Per Building	New	43	4	\$259	95%	75%	\$2.10	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	Per Building	New	44	10	\$247	75%	75%	\$0.95	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	Per Building	New	201	10	\$922	25%	95%	\$0.78	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	600	13	\$1,995	100%	N/A	\$0.47	13,857
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	200	13	\$272	100%	N/A	\$0.19	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	60	13	\$89	100%	N/A	\$0.21	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	74	13	\$89	100%	N/A	\$0.17	0.00
Gas	Restaurant	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	486	13	\$939	100%	N/A	\$0.28	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	Existing	11	12	\$25	26%	90%	\$0.35	2,019
Gas	School	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	6	12	\$7	26%	60%	\$0.17	1,400
Gas	School	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	Existing	22	12	\$131	26%	85%	\$0.89	0.00
Gas	School	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	3	12	\$31	26%	70%	\$1.43	0.00
Gas	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	2	12	\$12	26%	40%	\$0.95	0.00
Gas	School	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	5	12	\$54	14%	75%	\$1.48	0.00
Gas	School	Cooking	Broiler	Infrared Cooking Broiler (37% Cooking Efficiency)	Standard Broiler	Per Building	New	11	12	\$25	26%	90%	\$0.35	195
Gas	School	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	6	12	\$7	26%	60%	\$0.17	135
Gas	School	Cooking	Conveyor Oven	High Efficiency Model (42% Cooking Efficiency)	Standard Conveyor Oven	Per Building	New	22	12	\$131	26%	85%	\$0.89	0.00
Gas	School	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	3	12	\$31	26%	70%	\$1.43	0.00
Gas	School	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	2	12	\$12	26%	40%	\$0.95	0.00
Gas	School	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	5	12	\$54	14%	75%	\$1.48	0.00
Gas	School	Pool Heat	Spa Covers	R-14	No Cover	Per Building	Existing	562	6	\$930	25%	35%	\$0.42	2,108
Gas	School	Pool Heat	Swimming Pool Covers	Swimming Pool with Cover	No Cover	Per Building	Existing	3,185	5	\$1,073	50%	35%	\$0.10	25,813
Gas	School	Space Heat Boiler	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	192	15	\$1,292	25%	95%	\$0.88	11,286
Gas	School	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	264	20	\$1,807	75%	80%	\$0.77	0.00
Gas	School	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	82	10	\$1,398	75%	20%	\$2.89	0.00
Gas	School	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	29	10	\$408	75%	65%	\$2.32	0.00
Gas	School	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	725	20	\$11,593	100%	N/A	\$1.79	0.00
Gas	School	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	442	20	\$6,624	100%	N/A	\$1.68	0.00
Gas	School	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	634	20	\$9,936	100%	N/A	\$1.76	0.00
Gas	School	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	481	10	\$4,118	75%	85%	\$1.45	0.00
Gas	School	Space Heat Boiler	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,443	15	\$78,602	15%	70%	\$7.12	0.00
Gas	School	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	721	5	\$1,616	75%	75%	\$0.65	120,023
Gas	School	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	721	14	\$33,961	5.0%	95%	\$6.41	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	216	12	\$5,450	25%	85%	\$3.78	0.00
Gas	School	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	481	12	\$682	10%	60%	\$0.21	7,326
Gas	School	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	946	25	\$10,350	45%	65%	\$1.11	0.00
Gas	School	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	119	25	\$4,982	25%	85%	\$4.23	0.00
Gas	School	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,157	25	\$18,476	15%	85%	\$1.63	0.00
Gas	School	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	215	25	\$5,701	15%	95%	\$2.70	0.00
Gas	School	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY Slate Code)	Average Existing Conditions	Per Building	Existing	1,530	25	\$45,423	10%	45%	\$3.02	0.00
Gas	School	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	433	20	\$5,212	10%	95%	\$1.35	0.00
Gas	School	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	601	7	\$16,418	90%	95%	\$6.05	0.00
Gas	School	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	240	3	\$522	95%	50%	\$0.99	0.00
Gas	School	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	29	10	\$408	95%	65%	\$2.32	0.00
Gas	School	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	725	20	\$11,593	100%	N/A	\$1.79	0.00
Gas	School	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	442	20	\$6,624	100%	N/A	\$1.68	0.00
Gas	School	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	634	20	\$9,936	100%	N/A	\$1.76	0.00
Gas	School	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	470	10	\$4,118	95%	85%	\$1.49	0.00
Gas	School	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	271	7	\$19,133	95%	95%	\$15.65	0.00
Gas	School	Space Heat Boiler	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	706	5	\$1,616	25%	25%	\$0.67	1,270
Gas	School	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	706	14	\$33,961	5.0%	95%	\$6.55	0.00
Gas	School	Space Heat Boiler	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	211	12	\$5,450	25%	85%	\$3.86	0.00
Gas	School	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	117	25	\$4,982	75%	85%	\$4.33	0.00
Gas	School	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	210	25	\$5,701	15%	95%	\$2.76	0.00
Gas	School	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	570	25	\$4,749	95%	85%	\$0.85	0.00
Gas	School	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	423	20	\$5,212	25%	95%	\$1.38	0.00
Gas	School	Space Heat Furnace	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	196	15	\$1,292	25%	95%	\$0.86	23,050
Gas	School	Space Heat Furnace	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,472	15	\$78,602	15%	70%	\$6.98	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	736	5	\$1,616	75%	75%	\$0.64	246,817
Gas	School	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	122	18	\$6,205	45%	85%	\$5.98	0.00
Gas	School	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	736	14	\$33,961	5.0%	95%	\$6.28	0.00
Gas	School	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	220	12	\$5,450	25%	85%	\$3.70	0.00
Gas	School	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	308	20	\$4,196	1.7%	N/A	\$1.53	0.00
Gas	School	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	107	20	\$1,295	1.7%	N/A	\$1.35	0.00
Gas	School	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	210	20	\$2,691	1.7%	N/A	\$1.44	0.00
Gas	School	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	490	12	\$682	10%	60%	\$0.21	15,066
Gas	School	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	965	25	\$10,350	45%	65%	\$1.09	0.00
Gas	School	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	122	25	\$4,982	25%	85%	\$4.15	0.00
Gas	School	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	147	20	\$3,392	45%	60%	\$2.59	0.00
Gas	School	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	88	20	\$592	45%	85%	\$0.75	15,735
Gas	School	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,180	25	\$18,476	15%	85%	\$1.59	0.00
Gas	School	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	219	25	\$5,701	15%	95%	\$2.64	0.00
Gas	School	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,560	25	\$45,423	10%	45%	\$2.96	0.00
Gas	School	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	613	7	\$16,418	90%	95%	\$5.93	0.00
Gas	School	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	245	3	\$581	95%	50%	\$1.08	0.00
Gas	School	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	277	7	\$19,133	95%	95%	\$15.27	0.00
Gas	School	Space Heat Furnace	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	723	5	\$1,616	25%	25%	\$0.65	2,640
Gas	School	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	723	14	\$33,961	5.0%	95%	\$6.39	0.00
Gas	School	Space Heat Furnace	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	217	12	\$5,450	25%	85%	\$3.77	0.00
Gas	School	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	308	20	\$4,196	1.7%	N/A	\$1.53	0.00
Gas	School	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	107	20	\$1,295	1.7%	N/A	\$1.35	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Space Heat Furnace	Furnace < 250 kBtu/h - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	210	20	\$2,691	1.7%	N/A	\$1.44	0.00
Gas	School	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	120	25	\$4,982	75%	85%	\$4.22	0.00
Gas	School	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	86	20	\$592	45%	85%	\$0.77	1,346
Gas	School	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	215	25	\$5,701	15%	95%	\$2.69	0.00
Gas	School	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	584	25	\$4,749	95%	85%	\$0.83	0.00
Gas	School	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	11	9	\$100	25%	95%	\$1.60	0.00
Gas	School	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	5	14	\$41	5.0%	95%	\$1.03	0.00
Gas	School	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	59	10	\$7,182	55%	95%	\$20.36	0.00
Gas	School	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$74	20%	35%	\$9.57	0.00
Gas	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	19	12	\$258	70%	95%	\$1.95	0.00
Gas	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	18	12	\$258	70%	95%	\$2.13	0.00
Gas	School	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	11	12	\$113	75%	75%	\$1.42	0.00
Gas	School	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	239	25	\$3,599	2.5%	95%	\$1.53	0.00
Gas	School	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	377	20	\$5,212	10%	95%	\$1.55	0.00
Gas	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	46	9	\$2	95%	75%	\$0.01	6,631
Gas	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	19	9	\$0.00	95%	50%	\$0.00	1,820
Gas	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$25	95%	25%	\$0.66	0.00
Gas	School	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	82	4	\$491	95%	75%	\$2.10	0.00
Gas	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	9	10	\$23	95%	85%	\$0.40	1,599
Gas	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	7	10	\$56	95%	25%	\$1.22	0.00
Gas	School	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	29	10	\$393	75%	75%	\$2.23	0.00
Gas	School	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	136	10	\$328	25%	95%	\$0.41	7,010

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	345	13	\$4,266	100%	N/A	\$1.76	0.00
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	452	13	\$6,518	100%	N/A	\$2.05	0.00
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	253	13	\$2,844	100%	N/A	\$1.60	0.00
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	177	13	\$1,828	100%	N/A	\$1.47	0.00
Gas	School	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	11	9	\$100	25%	95%	\$1.60	0.00
Gas	School	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	5	14	\$41	5.0%	95%	\$1.03	0.00
Gas	School	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	59	10	\$7,182	55%	95%	\$20.45	0.00
Gas	School	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$74	20%	35%	\$9.57	0.00
Gas	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	19	12	\$258	70%	95%	\$1.95	0.00
Gas	School	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	18	12	\$258	70%	95%	\$2.13	0.00
Gas	School	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	238	25	\$2,880	2.5%	95%	\$1.23	0.00
Gas	School	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	375	20	\$5,212	25%	95%	\$1.56	0.00
Gas	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	46	9	\$2	95%	75%	\$0.01	620
Gas	School	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	18	9	\$0.00	95%	50%	\$0.00	170
Gas	School	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	82	4	\$491	95%	75%	\$2.10	0.00
Gas	School	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	9	10	\$23	95%	85%	\$0.40	150
Gas	School	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	29	10	\$393	75%	75%	\$2.24	0.00
Gas	School	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	136	10	\$328	25%	95%	\$0.41	656
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	345	13	\$4,266	100%	N/A	\$1.76	0.00
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	452	13	\$6,518	100%	N/A	\$2.05	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	253	13	\$2,844	100%	N/A	\$1.60	0.00
Gas	School	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	177	13	\$1,828	100%	N/A	\$1.47	0.00
Gas	School	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	11	9	\$100	25%	95%	\$1.60	0.00
Gas	School	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	5	14	\$41	5.0%	95%	\$1.03	0.00
Gas	School	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	60	10	\$7,182	25%	95%	\$20.22	0.00
Gas	School	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	1	12	\$74	75%	35%	\$9.57	0.00
Gas	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	19	12	\$258	75%	95%	\$1.95	0.00
Gas	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	18	12	\$258	75%	95%	\$2.13	0.00
Gas	School	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	12	12	\$113	75%	75%	\$1.42	0.00
Gas	School	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	241	25	\$3,599	2.5%	95%	\$1.52	0.00
Gas	School	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	380	20	\$5,212	10%	95%	\$1.54	0.00
Gas	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	46	9	\$2	95%	75%	\$0.01	10,188
Gas	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	19	9	\$0.00	95%	50%	\$0.00	2,796
Gas	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	7	9	\$25	95%	25%	\$0.65	0.00
Gas	School	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	82	4	\$491	95%	75%	\$2.10	0.00
Gas	School	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	9	10	\$23	95%	85%	\$0.40	2,440
Gas	School	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	7	10	\$56	95%	25%	\$1.22	0.00
Gas	School	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	30	10	\$393	75%	75%	\$2.21	0.00
Gas	School	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	137	10	\$328	25%	95%	\$0.41	10,771
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	409	13	\$3,265	100%	N/A	\$1.14	0.00
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	136	13	\$447	100%	N/A	\$0.47	16,857

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	41	13	\$147	100%	N/A	\$0.51	0.00
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	50	13	\$147	100%	N/A	\$0.42	0.00
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	332	13	\$1,538	100%	N/A	\$0.66	0.00
Gas	School	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	11	9	\$100	25%	95%	\$1.60	0.00
Gas	School	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	5	14	\$41	5.0%	95%	\$1.03	0.00
Gas	School	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	60	10	\$7,182	25%	95%	\$20.28	0.00
Gas	School	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	1	12	\$74	75%	35%	\$9.57	0.00
Gas	School	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	19	12	\$258	75%	95%	\$1.95	0.00
Gas	School	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	18	12	\$258	75%	95%	\$2.13	0.00
Gas	School	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	240	25	\$2,880	2.5%	95%	\$1.22	0.00
Gas	School	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	379	20	\$5,212	25%	95%	\$1.54	0.00
Gas	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	46	9	\$2	95%	75%	\$0.01	963
Gas	School	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	19	9	\$0.00	95%	50%	\$0.00	264
Gas	School	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	82	4	\$491	95%	75%	\$2.10	0.00
Gas	School	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	9	10	\$23	95%	85%	\$0.40	231
Gas	School	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	30	10	\$393	75%	75%	\$2.22	0.00
Gas	School	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System, Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	137	10	\$328	25%	95%	\$0.41	1,018
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	409	13	\$3,265	100%	N/A	\$1.14	0.00
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	136	13	\$447	100%	N/A	\$0.47	1,914
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	41	13	\$147	100%	N/A	\$0.51	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	50	13	\$147	100%	N/A	\$0.42	0.00
Gas	School	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	332	13	\$1,538	100%	N/A	\$0.66	0.00
Gas	Small Office	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	102	20	\$539	75%	80%	\$0.59	8,040
Gas	Small Office	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	45	10	\$778	75%	20%	\$2.88	0.00
Gas	Small Office	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	16	10	\$228	75%	65%	\$2.32	0.00
Gas	Small Office	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	280	20	\$3,461	100%	N/A	\$1.39	0.00
Gas	Small Office	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	170	20	\$1,977	100%	N/A	\$1.30	0.00
Gas	Small Office	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	245	20	\$2,967	100%	N/A	\$1.36	0.00
Gas	Small Office	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	186	10	\$2,059	75%	85%	\$1.88	0.00
Gas	Small Office	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	279	14	\$10,138	5.0%	95%	\$4.95	0.00
Gas	Small Office	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	186	12	\$250	10%	60%	\$0.20	1,445
Gas	Small Office	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	216	25	\$2,969	45%	65%	\$1.40	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	46	25	\$1,429	25%	85%	\$3.14	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	447	25	\$5,300	15%	85%	\$1.21	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	83	25	\$1,634	15%	95%	\$2.00	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	591	25	\$13,031	10%	45%	\$2.24	0.00
Gas	Small Office	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	167	20	\$1,555	10%	95%	\$1.04	0.00
Gas	Small Office	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	232	7	\$4,901	90%	95%	\$4.67	0.00
Gas	Small Office	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	93	3	\$155	95%	50%	\$0.76	0.00
Gas	Small Office	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	16	10	\$228	95%	65%	\$2.32	0.00
Gas	Small Office	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	280	20	\$3,461	100%	N/A	\$1.39	0.00
Gas	Small Office	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	170	20	\$1,977	100%	N/A	\$1.30	0.00
Gas	Small Office	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	245	20	\$2,967	100%	N/A	\$1.36	0.00
Gas	Small Office	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	181	10	\$2,059	95%	85%	\$1.92	0.00
Gas	Small Office	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	104	7	\$5,712	95%	95%	\$12.08	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Office	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	272	14	\$10,138	5.0%	95%	\$5.06	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	45	25	\$1,429	75%	85%	\$3.21	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	81	25	\$1,634	15%	95%	\$2.04	0.00
Gas	Small Office	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	220	25	\$1,362	95%	85%	\$0.63	1,834
Gas	Small Office	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	163	20	\$1,555	25%	95%	\$1.07	0.00
Gas	Small Office	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	47	18	\$1,852	45%	85%	\$4.62	0.00
Gas	Small Office	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	284	14	\$10,138	5.0%	95%	\$4.85	0.00
Gas	Small Office	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	119	20	\$1,252	12%	N/A	\$1.18	0.00
Gas	Small Office	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	41	20	\$386	12%	N/A	\$1.05	0.00
Gas	Small Office	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	81	20	\$803	12%	N/A	\$1.11	0.00
Gas	Small Office	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	189	12	\$250	10%	60%	\$0.20	25,468
Gas	Small Office	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	220	25	\$2,969	45%	65%	\$1.37	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	47	25	\$1,429	25%	85%	\$3.08	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	56	20	\$260	45%	60%	\$0.51	34,175
Gas	Small Office	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	34	20	\$46	45%	85%	\$0.15	29,427
Gas	Small Office	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	456	25	\$5,300	15%	85%	\$1.18	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	84	25	\$1,634	15%	95%	\$1.96	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	603	25	\$13,031	10%	45%	\$2.20	0.00
Gas	Small Office	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	237	7	\$4,901	90%	95%	\$4.58	0.00
Gas	Small Office	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	94	3	\$173	95%	50%	\$0.84	0.00
Gas	Small Office	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	107	7	\$5,712	95%	95%	\$11.79	0.00
Gas	Small Office	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	279	14	\$10,138	5.0%	95%	\$4.94	0.00
Gas	Small Office	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	119	20	\$1,252	12%	N/A	\$1.18	0.00
Gas	Small Office	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	41	20	\$386	12%	N/A	\$1.05	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Office	Space Heat Furnace	Furnace < 250 kBtu/h - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	81	20	\$803	12%	N/A	\$1.11	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	46	25	\$1,429	75%	85%	\$3.13	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	33	20	\$46	45%	85%	\$0.15	2,313
Gas	Small Office	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	83	25	\$1,634	15%	95%	\$2.00	0.00
Gas	Small Office	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	226	25	\$1,362	95%	85%	\$0.61	32,664
Gas	Small Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	3	10	\$2,144	55%	80%	\$98.62	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.28	12	\$17	90%	35%	\$9.44	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	0.73	12	\$31	75%	75%	\$6.43	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	14	25	\$1,000	2.5%	95%	\$6.90	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	23	20	\$1,555	10%	95%	\$7.50	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	2	9	\$0.00	95%	75%	\$0.00	1,330
Gas	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.00	95%	50%	\$0.00	365
Gas	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.44	9	\$4	95%	25%	\$1.91	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	1	10	\$59	75%	85%	\$5.47	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	21	13	\$1,184	100%	N/A	\$7.92	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	27	13	\$1,810	100%	N/A	\$9.25	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	15	13	\$789	100%	N/A	\$7.21	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	10	13	\$507	100%	N/A	\$6.62	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	3	10	\$2,144	55%	80%	\$99.08	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.28	12	\$17	90%	35%	\$9.44	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	14	25	\$800	2.5%	95%	\$5.54	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	23	20	\$1,555	25%	95%	\$7.53	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	2	9	\$0.00	95%	75%	\$0.00	124

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Office	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.00	95%	50%	\$0.00	34
Gas	Small Office	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	1	10	\$59	75%	85%	\$5.49	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	21	13	\$1,184	100%	N/A	\$7.92	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	27	13	\$1,810	100%	N/A	\$9.25	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	15	13	\$789	100%	N/A	\$7.21	0.00
Gas	Small Office	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	10	13	\$507	100%	N/A	\$6.62	0.00
Gas	Small Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	3	10	\$2,144	25%	80%	\$97.96	0.00
Gas	Small Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.28	12	\$17	75%	35%	\$9.44	0.00
Gas	Small Office	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	0.74	12	\$31	75%	75%	\$6.39	0.00
Gas	Small Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	14	25	\$1,000	2.5%	95%	\$6.85	0.00
Gas	Small Office	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	23	20	\$1,555	10%	95%	\$7.45	0.00
Gas	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	2	9	\$0.00	95%	75%	\$0.00	2,187
Gas	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.00	95%	50%	\$0.00	600
Gas	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.44	9	\$4	95%	25%	\$1.90	0.00
Gas	Small Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	1	10	\$59	75%	85%	\$5.43	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	25	13	\$906	100%	N/A	\$5.12	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	8	13	\$123	100%	N/A	\$2.09	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	2	13	\$40	100%	N/A	\$2.26	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	3	13	\$40	100%	N/A	\$1.84	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	20	13	\$426	100%	N/A	\$2.97	0.00
Gas	Small Office	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	3	10	\$2,144	25%	80%	\$98.23	0.00
Gas	Small Office	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.28	12	\$17	75%	35%	\$9.44	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Office	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	14	25	\$800	2.5%	95%	\$5.50	0.00
Gas	Small Office	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	23	20	\$1,555	25%	95%	\$7.47	0.00
Gas	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	2	9	\$0.00	95%	75%	\$0.00	210
Gas	Small Office	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.00	95%	50%	\$0.00	57
Gas	Small Office	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	1	10	\$59	75%	85%	\$5.45	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Water Heater LE 55 Gal - Condensing - High Efficiency	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.90	Per Building	New	25	13	\$906	100%	N/A	\$5.12	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	8	13	\$123	100%	N/A	\$2.09	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	2	13	\$40	100%	N/A	\$2.26	-0.0089994
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	3	13	\$40	100%	N/A	\$1.84	0.00
Gas	Small Office	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	20	13	\$426	100%	N/A	\$2.97	0.00
Gas	Small Retail	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	86	20	\$365	75%	80%	\$0.47	3,534
Gas	Small Retail	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	32	10	\$548	75%	20%	\$2.89	0.00
Gas	Small Retail	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	11	10	\$160	75%	65%	\$2.32	0.00
Gas	Small Retail	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	237	20	\$2,347	100%	N/A	\$1.11	0.00
Gas	Small Retail	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	144	20	\$1,341	100%	N/A	\$1.04	0.00
Gas	Small Retail	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	207	20	\$2,012	100%	N/A	\$1.09	0.00
Gas	Small Retail	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	157	10	\$2,058	75%	85%	\$2.22	0.00
Gas	Small Retail	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	236	14	\$6,877	5.0%	95%	\$3.97	0.00
Gas	Small Retail	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	157	12	\$146	10%	60%	\$0.14	635
Gas	Small Retail	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	309	25	\$2,757	45%	65%	\$0.91	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	39	25	\$1,326	25%	85%	\$3.44	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	378	25	\$4,921	15%	85%	\$1.32	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	70	25	\$1,518	15%	95%	\$2.19	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	500	25	\$12,099	10%	45%	\$2.46	0.00
Gas	Small Retail	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	141	20	\$1,055	10%	95%	\$0.84	0.00

Table F.2. Commercial Measures Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Retail	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	196	7	\$3,324	90%	95%	\$3.75	0.00
Gas	Small Retail	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	78	3	\$105	95%	50%	\$0.61	0.00
Gas	Small Retail	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	11	10	\$160	95%	65%	\$2.32	0.00
Gas	Small Retail	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	237	20	\$2,347	100%	N/A	\$1.11	0.00
Gas	Small Retail	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	144	20	\$1,341	100%	N/A	\$1.04	0.00
Gas	Small Retail	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	207	20	\$2,012	100%	N/A	\$1.09	0.00
Gas	Small Retail	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	154	10	\$2,058	95%	85%	\$2.27	0.00
Gas	Small Retail	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	88	7	\$3,874	95%	95%	\$9.68	0.00
Gas	Small Retail	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	231	14	\$6,877	5.0%	95%	\$4.06	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	38	25	\$1,326	75%	85%	\$3.52	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	68	25	\$1,518	15%	95%	\$2.24	0.00
Gas	Small Retail	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	186	25	\$1,265	95%	85%	\$0.69	806
Gas	Small Retail	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	138	20	\$1,055	25%	95%	\$0.85	0.00
Gas	Small Retail	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	40	18	\$1,256	45%	85%	\$3.70	0.00
Gas	Small Retail	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	240	14	\$6,877	5.0%	95%	\$3.89	0.00
Gas	Small Retail	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	100	20	\$849	12%	N/A	\$0.94	0.00
Gas	Small Retail	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	35	20	\$262	12%	N/A	\$0.84	0.00
Gas	Small Retail	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	68	20	\$545	12%	N/A	\$0.89	0.00
Gas	Small Retail	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	160	12	\$146	10%	60%	\$0.14	5,946
Gas	Small Retail	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	316	25	\$2,757	45%	65%	\$0.89	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	40	25	\$1,326	25%	85%	\$3.37	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	48	20	\$522	45%	60%	\$1.22	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	28	20	\$91	45%	85%	\$0.35	6,782
Gas	Small Retail	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	386	25	\$4,921	15%	85%	\$1.30	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	71	25	\$1,518	15%	95%	\$2.15	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Retail	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	510	25	\$12,099	10%	45%	\$2.41	0.00
Gas	Small Retail	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	200	7	\$3,324	90%	95%	\$3.67	0.00
Gas	Small Retail	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	80	3	\$117	95%	50%	\$0.67	0.00
Gas	Small Retail	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	90	7	\$3,874	95%	95%	\$9.45	0.00
Gas	Small Retail	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	236	14	\$6,877	5.0%	95%	\$3.96	0.00
Gas	Small Retail	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	100	20	\$849	12%	N/A	\$0.94	0.00
Gas	Small Retail	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	35	20	\$262	12%	N/A	\$0.84	0.00
Gas	Small Retail	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	68	20	\$545	12%	N/A	\$0.89	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	39	25	\$1,326	75%	85%	\$3.43	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	28	20	\$91	45%	85%	\$0.36	536
Gas	Small Retail	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	70	25	\$1,518	15%	95%	\$2.19	0.00
Gas	Small Retail	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	191	25	\$1,265	95%	85%	\$0.67	7,573
Gas	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	1	9	\$14	25%	95%	\$1.63	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	0.77	14	\$5	5.0%	95%	\$1.01	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	2	10	\$1,454	75%	95%	\$115.58	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.61	12	\$39	10%	35%	\$9.52	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	0.42	12	\$25	75%	75%	\$9.01	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	8	25	\$800	2.5%	95%	\$9.53	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	13	20	\$1,055	10%	95%	\$8.79	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.00	95%	75%	\$0.00	143
Gas	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	0.68	9	\$0.00	95%	50%	\$0.00	39
Gas	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.25	9	\$7	95%	25%	\$5.61	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	1	10	\$117	75%	85%	\$18.72	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	12	13	\$711	100%	N/A	\$8.22	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	16	13	\$1,086	100%	N/A	\$9.59	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	9	13	\$473	100%	N/A	\$7.48	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	6	13	\$304	100%	N/A	\$6.87	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	1	9	\$14	25%	95%	\$1.63	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	0.77	14	\$5	5.0%	95%	\$1.01	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	2	10	\$1,454	75%	95%	\$116.12	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.61	12	\$39	10%	35%	\$9.52	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	8	25	\$639	2.5%	95%	\$7.66	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	13	20	\$1,055	25%	95%	\$8.83	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.00	95%	75%	\$0.00	13
Gas	Small Retail	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	0.67	9	\$0.00	95%	50%	\$0.00	3
Gas	Small Retail	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	1	10	\$117	75%	85%	\$18.81	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	12	13	\$711	100%	N/A	\$8.22	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	16	13	\$1,086	100%	N/A	\$9.59	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	9	13	\$473	100%	N/A	\$7.48	0.00
Gas	Small Retail	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	6	13	\$304	100%	N/A	\$6.87	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	1	9	\$14	25%	95%	\$1.63	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	0.77	14	\$5	5.0%	95%	\$1.01	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	2	10	\$1,454	25%	95%	\$114.81	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.61	12	\$39	75%	35%	\$9.52	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	0.43	12	\$25	75%	75%	\$8.95	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	8	25	\$800	2.5%	95%	\$9.46	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	13	20	\$1,055	10%	95%	\$8.73	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.00	95%	75%	\$0.00	236
Gas	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	0.68	9	\$0.00	95%	50%	\$0.00	64
Gas	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.25	9	\$7	95%	25%	\$5.57	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	1	10	\$117	75%	85%	\$18.60	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	14	13	\$544	100%	N/A	\$5.31	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	4	13	\$74	100%	N/A	\$2.17	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	1	13	\$24	100%	N/A	\$2.34	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	1	13	\$24	100%	N/A	\$1.91	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	11	13	\$255	100%	N/A	\$3.08	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	1	9	\$14	25%	95%	\$1.63	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Federal Standard 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	0.77	14	\$5	5.0%	95%	\$1.01	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	2	10	\$1,454	25%	95%	\$115.13	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.61	12	\$39	75%	35%	\$9.52	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	8	25	\$639	2.5%	95%	\$7.59	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	13	20	\$1,055	25%	95%	\$8.76	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.00	95%	75%	\$0.00	22

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Small Retail	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	0.68	9	\$0.00	95%	50%	\$0.00	6
Gas	Small Retail	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	1	10	\$117	75%	85%	\$18.65	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	14	13	\$544	100%	N/A	\$5.31	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	4	13	\$74	100%	N/A	\$2.17	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	1	13	\$24	100%	N/A	\$2.34	-0.0009709
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	1	13	\$24	100%	N/A	\$1.91	0.00
Gas	Small Retail	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	11	13	\$255	100%	N/A	\$3.08	0.00
Gas	Warehouse	Space Heat Boiler	Boiler - Economizer	Economizer	No Economizer	Per Building	Existing	16	20	\$467	75%	80%	\$3.18	0.00
Gas	Warehouse	Space Heat Boiler	Boiler - Pipe Insulation	2.0" of Insulation, assuming R-7.5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	36	10	\$619	75%	20%	\$2.88	0.00
Gas	Warehouse	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	Existing	13	10	\$182	75%	65%	\$2.33	0.00
Gas	Warehouse	Space Heat Boiler	Boiler < 300 kBtu/h - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	Existing	45	20	\$2,999	100%	N/A	\$7.45	0.00
Gas	Warehouse	Space Heat Boiler	Boiler < 300 kBtu/h - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	Existing	27	20	\$1,713	100%	N/A	\$6.99	0.00
Gas	Warehouse	Space Heat Boiler	Boiler < 300 kBtu/h - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	Existing	39	20	\$2,570	100%	N/A	\$7.30	0.00
Gas	Warehouse	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	Existing	29	10	\$2,058	75%	85%	\$11.67	0.00
Gas	Warehouse	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	44	14	\$8,787	5.0%	95%	\$26.63	0.00
Gas	Warehouse	Space Heat Boiler	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	29	12	\$47	10%	60%	\$0.24	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	56	25	\$3,523	45%	65%	\$6.31	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	7	25	\$1,694	25%	85%	\$23.10	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	104	25	\$6,288	15%	85%	\$6.12	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	13	25	\$1,940	15%	95%	\$14.73	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	95	25	\$15,459	10%	45%	\$16.52	0.00
Gas	Warehouse	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	26	20	\$1,348	10%	95%	\$5.61	0.00
Gas	Warehouse	Space Heat Boiler	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	37	7	\$4,248	90%	95%	\$25.14	0.00
Gas	Warehouse	Space Heat Boiler	Tune-up - Boiler Maintenance	Boiler Maintenance (Tune-up)	Unmaintained Boiler	Per Building	Existing	14	3	\$135	95%	50%	\$4.11	0.00
Gas	Warehouse	Space Heat Boiler	Boiler - Pipe Insulation	3.0" of Insulation, assuming R-11	2.0" of Insulation, assuming R-7.5 (KY State Code)	Per Building	New	13	10	\$182	95%	65%	\$2.33	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Warehouse	Space Heat Boiler	Boiler < 300 kBtuh - Advanced Efficiency	Advanced Efficiency - AFUE 96%	Standard Efficiency - AFUE 82%	Per Building	New	45	20	\$2,999	100%	N/A	\$7.45	0.00
Gas	Warehouse	Space Heat Boiler	Boiler < 300 kBtuh - High Efficiency	High Efficiency - AFUE 90%	Standard Efficiency - AFUE 82%	Per Building	New	27	20	\$1,713	100%	N/A	\$6.99	0.00
Gas	Warehouse	Space Heat Boiler	Boiler < 300 kBtuh - Premium Efficiency	Premium Efficiency - AFUE 94%	Standard Efficiency - AFUE 82%	Per Building	New	39	20	\$2,570	100%	N/A	\$7.30	0.00
Gas	Warehouse	Space Heat Boiler	Boiler Reset Controls	Boiler Reset Controls	No Boiler Reset Controls	Per Building	New	29	10	\$2,058	95%	85%	\$11.93	0.00
Gas	Warehouse	Space Heat Boiler	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	16	7	\$4,950	95%	95%	\$65.02	0.00
Gas	Warehouse	Space Heat Boiler	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	43	14	\$8,787	5.0%	95%	\$27.23	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	7	25	\$1,694	75%	85%	\$23.62	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	13	25	\$1,940	15%	95%	\$15.06	0.00
Gas	Warehouse	Space Heat Boiler	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	35	25	\$1,616	95%	85%	\$4.63	0.00
Gas	Warehouse	Space Heat Boiler	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	26	20	\$1,348	25%	95%	\$5.74	0.00
Gas	Warehouse	Space Heat Furnace	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	7	18	\$1,605	45%	85%	\$24.85	0.00
Gas	Warehouse	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	45	14	\$8,787	5.0%	95%	\$26.11	0.00
Gas	Warehouse	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	19	20	\$1,085	3.3%	N/A	\$6.34	0.00
Gas	Warehouse	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	6	20	\$335	3.3%	N/A	\$5.63	0.00
Gas	Warehouse	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	Existing	13	20	\$696	3.3%	N/A	\$5.97	0.00
Gas	Warehouse	Space Heat Furnace	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	30	12	\$47	10%	60%	\$0.23	5,124
Gas	Warehouse	Space Heat Furnace	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	58	25	\$3,523	45%	65%	\$6.18	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	9	20	\$1,739	45%	60%	\$21.28	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	5	20	\$305	45%	85%	\$6.22	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	106	25	\$6,288	15%	85%	\$6.00	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	13	25	\$1,940	15%	95%	\$14.44	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	97	25	\$15,459	10%	45%	\$16.20	0.00
Gas	Warehouse	Space Heat Furnace	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	38	7	\$4,248	90%	95%	\$24.65	0.00
Gas	Warehouse	Space Heat Furnace	Tune-up - Furnace Maintenance	Furnace Maintenance (Tune-up)	Unmaintained Furnace	Per Building	Existing	15	3	\$150	95%	50%	\$4.49	0.00
Gas	Warehouse	Space Heat Furnace	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	17	7	\$4,950	95%	95%	\$63.44	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Warehouse	Space Heat Furnace	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	45	14	\$8,787	5.0%	95%	\$26.56	0.00
Gas	Warehouse	Space Heat Furnace	Furnace < 250 kBtuh - Advanced Efficiency	Advanced Efficiency - 96% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	19	20	\$1,085	3.3%	N/A	\$6.34	0.00
Gas	Warehouse	Space Heat Furnace	Furnace < 250 kBtuh - High Efficiency	High Efficiency - 92% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	6	20	\$335	3.3%	N/A	\$5.63	0.00
Gas	Warehouse	Space Heat Furnace	Furnace < 250 kBtuh - Premium Efficiency	Premium Efficiency - 94% AFUE Gas Furnaces (Non-Weatherized)	Standard Efficiency - 90% AFUE Gas Furnaces (Non-Weatherized)	Per Building	New	13	20	\$696	3.3%	N/A	\$5.97	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	5	20	\$305	45%	85%	\$6.33	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	13	25	\$1,940	15%	95%	\$14.70	0.00
Gas	Warehouse	Space Heat Furnace	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	36	25	\$1,616	95%	85%	\$4.52	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	1	10	\$1,858	55%	95%	\$222.22	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.06	12	\$4	75%	35%	\$10.22	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	0.28	12	\$25	75%	75%	\$13.43	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	5	25	\$799	2.5%	95%	\$14.33	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	8	20	\$1,348	10%	95%	\$16.91	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.00	95%	75%	\$0.00	445
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	0.45	9	\$0.00	95%	50%	\$0.00	122
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.17	9	\$5	95%	25%	\$5.75	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	4	10	\$12	95%	85%	\$0.42	2,264
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	3	10	\$28	95%	25%	\$1.23	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	0.71	10	\$78	75%	95%	\$18.72	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	8	13	\$710	100%	N/A	\$12.36	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	10	13	\$1,085	100%	N/A	\$14.43	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	6	13	\$473	100%	N/A	\$11.25	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	Existing	4	13	\$304	100%	N/A	\$10.33	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	1	10	\$1,858	55%	95%	\$223.24	0.00

Table F.2. Commercial Gas Measure Details

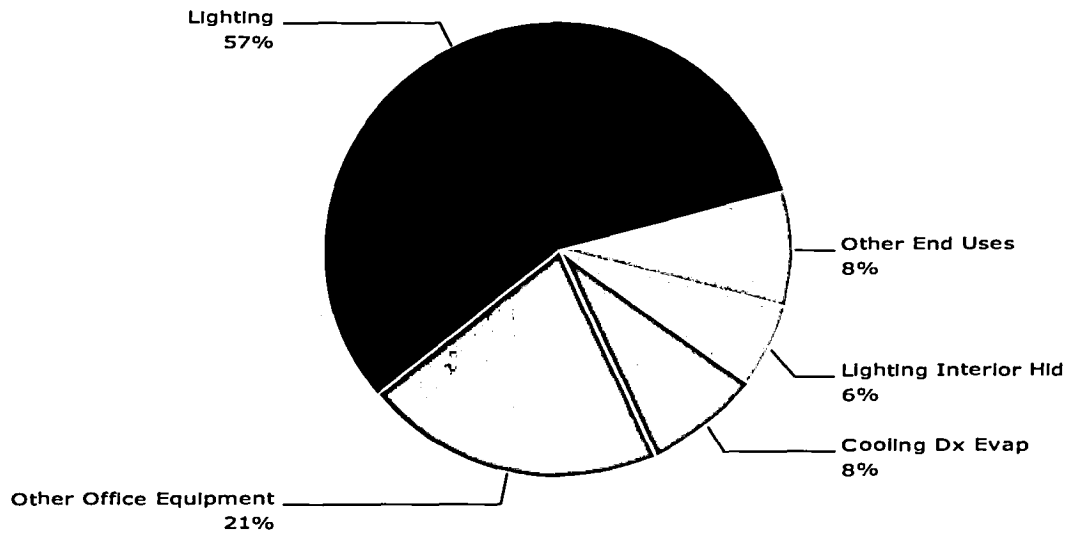
Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Warehouse	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.06	12	\$4	75%	35%	\$10.22	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	5	25	\$640	2.5%	95%	\$11.53	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	8	20	\$1,348	25%	95%	\$16.98	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.00	95%	75%	\$0.00	41
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	0.45	9	\$0.00	95%	50%	\$0.00	11
Gas	Warehouse	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	4	10	\$12	95%	85%	\$0.42	213
Gas	Warehouse	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	0.70	10	\$78	75%	95%	\$18.80	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - Federal Standard 2015	Federal Standard 2015 Condensing Water Heater GT 55 Gal - EF 0.743	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	8	13	\$710	100%	N/A	\$12.36	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Condensing - High Efficiency	Condensing Water Heater GT 55 Gal - EF 0.85	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	10	13	\$1,085	100%	N/A	\$14.43	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater GT 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	6	13	\$473	100%	N/A	\$11.25	0.00
Gas	Warehouse	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater GT 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.528	Per Building	New	4	13	\$304	100%	N/A	\$10.33	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	1	10	\$1,858	25%	95%	\$220.72	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	0.06	12	\$4	75%	35%	\$10.22	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	0.28	12	\$25	75%	75%	\$13.34	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	5	25	\$799	2.5%	95%	\$14.23	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	Existing	9	20	\$1,348	10%	95%	\$16.79	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	1	9	\$0.00	95%	75%	\$0.00	732
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	0.45	9	\$0.00	95%	50%	\$0.00	200
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	0.17	9	\$5	95%	25%	\$5.71	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	4	10	\$12	95%	85%	\$0.42	3,698
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	3	10	\$28	95%	25%	\$1.23	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	0.71	10	\$78	75%	95%	\$18.59	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Condensing Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	9	13	\$544	100%	N/A	\$7.99	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	3	13	\$74	100%	N/A	\$3.27	0.00

Table F.2. Commercial Gas Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (Therms)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per Therms)	2033 Cumulative Achievable Technical Potential (Therms)
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	0.97	13	\$24	100%	N/A	\$3.52	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	1	13	\$24	100%	N/A	\$2.87	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	Existing	7	13	\$256	100%	N/A	\$4.64	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	1	10	\$1,858	25%	95%	\$221.34	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	0.06	12	\$4	75%	35%	\$10.22	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	5	25	\$640	2.5%	95%	\$11.43	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Integrated Space Heating/Water Heating	Integrated System	Separate Boiler And Hot Water Heater	Per Building	New	8	20	\$1,348	25%	95%	\$16.84	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	1	9	\$0.00	95%	75%	\$0.00	70
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	0.45	9	\$0.00	95%	50%	\$0.00	19
Gas	Warehouse	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	4	10	\$12	95%	85%	\$0.42	357
Gas	Warehouse	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	0.71	10	\$78	75%	95%	\$18.64	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Condensing - High Efficiency	Water Heater LE 55 Gal - EF 0.90	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	9	13	\$544	100%	N/A	\$7.99	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - ENERGY STAR	ENERGY STAR Storage Water Heater LE 55 Gal - EF 0.67	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	3	13	\$74	100%	N/A	\$3.27	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.615	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	0.97	13	\$24	100%	N/A	\$3.52	-0.0025575
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - High Efficiency	High Efficiency Storage Water Heater LE 55 Gal - EF 0.62	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	1	13	\$24	100%	N/A	\$2.87	0.00
Gas	Warehouse	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Tankless - ENERGY STAR	ENERGY STAR Tankless Water Heater LE 55 Gal - EF 0.82	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.594	Per Building	New	7	13	\$256	100%	N/A	\$4.64	0.00

Figure E.18 Electric Achievable Economic Potential: Commercial Warehouse by End Use

Total: 5,512 MWh



Note: 'Other End Uses' includes:

Water Heat Le 55 Gal: 3%, Appliances: 2%, Water Heat Gt 55 Gal: 1%, Cooling: <1%, Room Cool: <1%, Heat Pump: <1%

Figure E.19 Gas Achievable Economic Potential: Residential by Segment

Total: 16,694,924 Therms

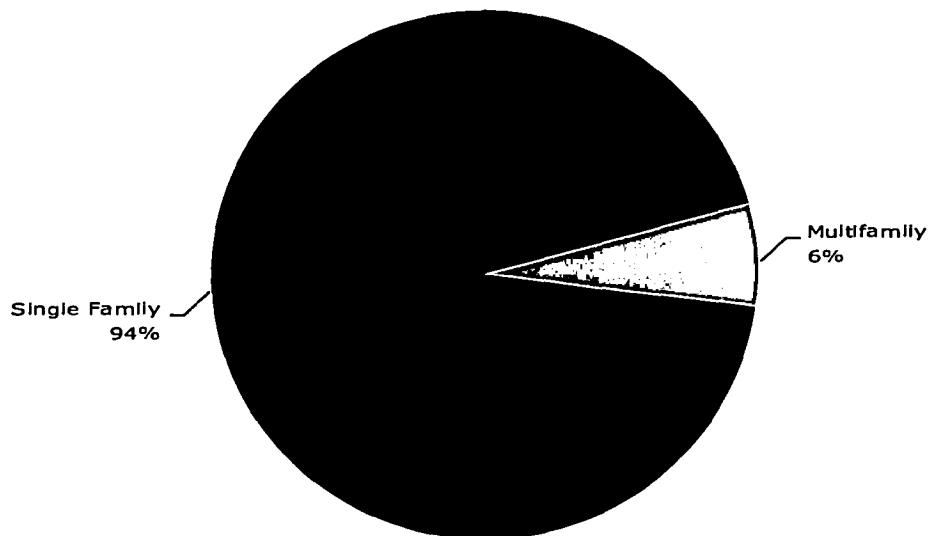
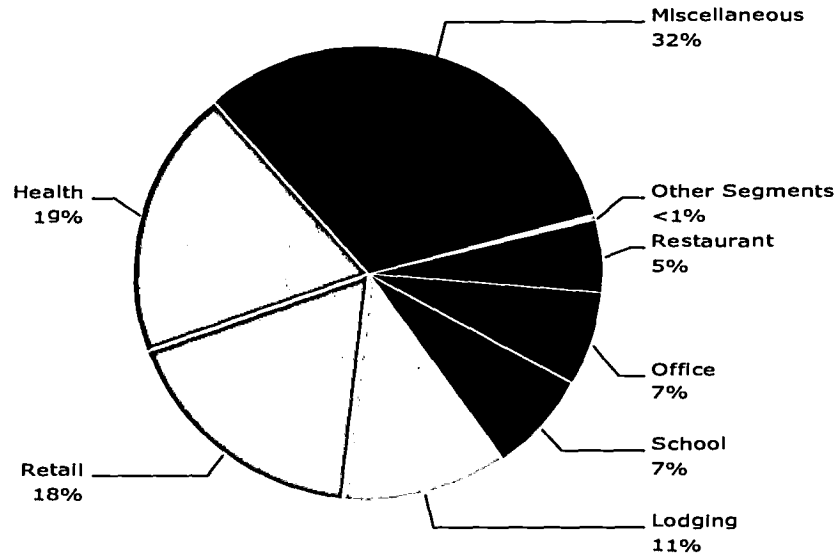


Figure E.20 Gas Achievable Economic Potential: Commercial by Segment

Total: 7,602,697 Therms



Note: 'Other Segments' includes:
Grocery: <1%, Warehouse: <1%

Figure E.21 Gas Achievable Economic Potential: Residential by End Use

Total: 16,694,924 Therms

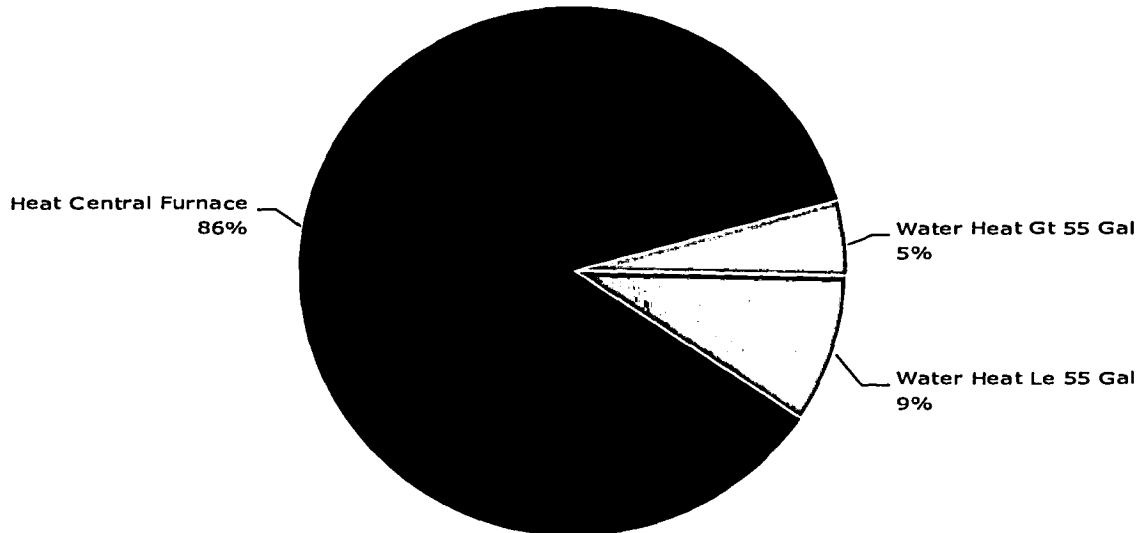
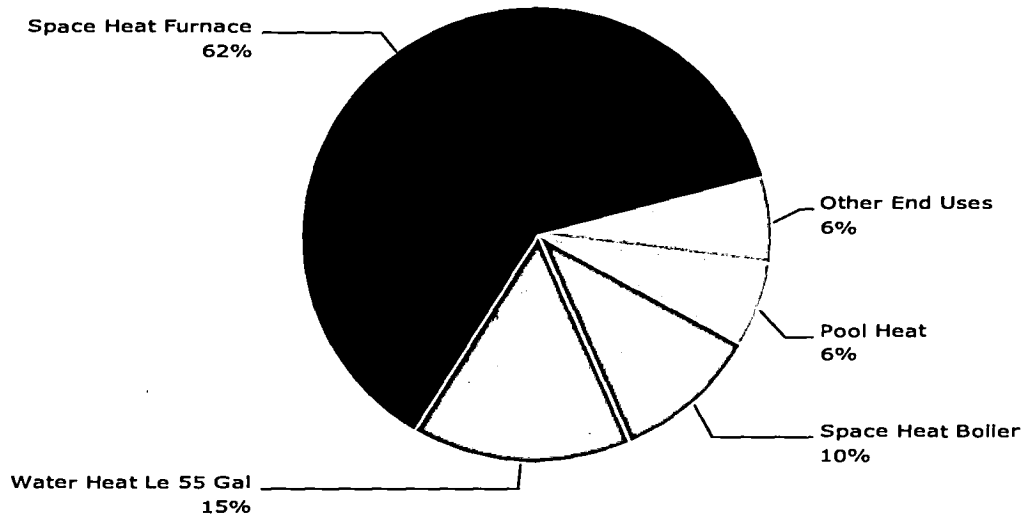


Figure E.22 Gas Achievable Economic Potential: Commercial by End Use

Total: 7,602,697 Therms



Note: 'Other End Uses' includes:
Water Heat Gt 55 Gal: 4%, Cooking: 2%

Figure E.23 Gas Achievable Economic Potential: Residential Single Family by End Use

Total: 15,662,979 Therms

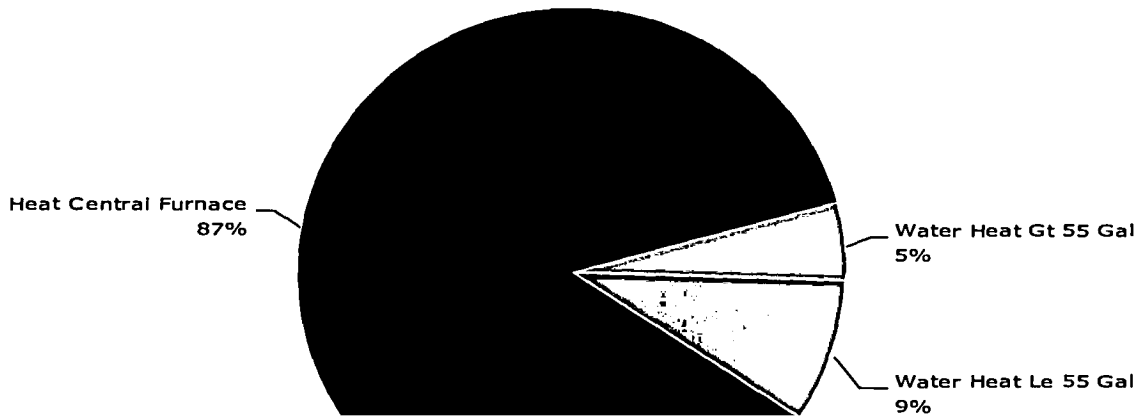


Figure E.24 Gas Achievable Economic Potential: Residential Multifamily by End Use

Total: 1,031,944 Therms

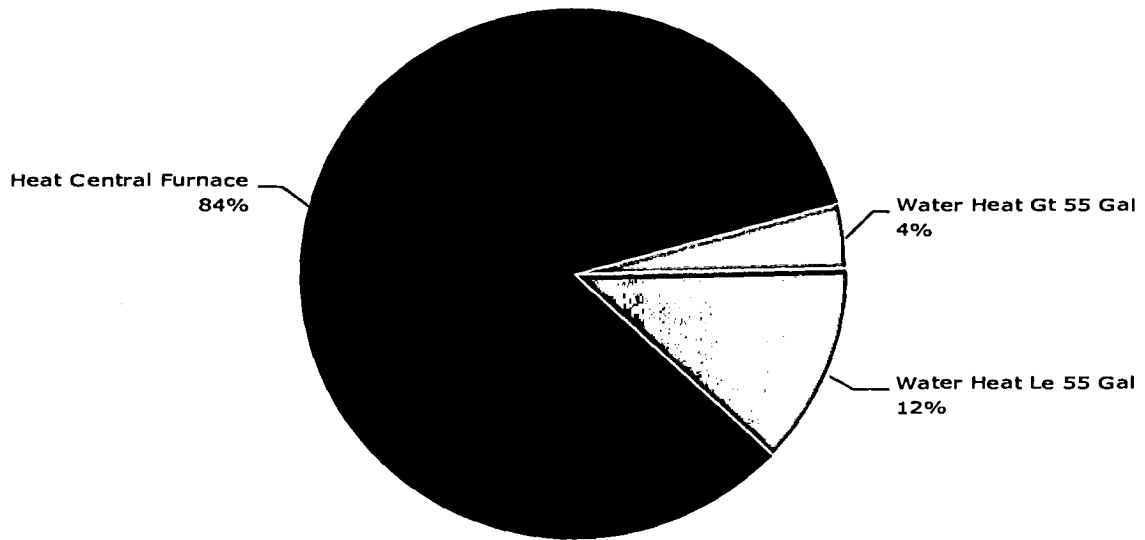
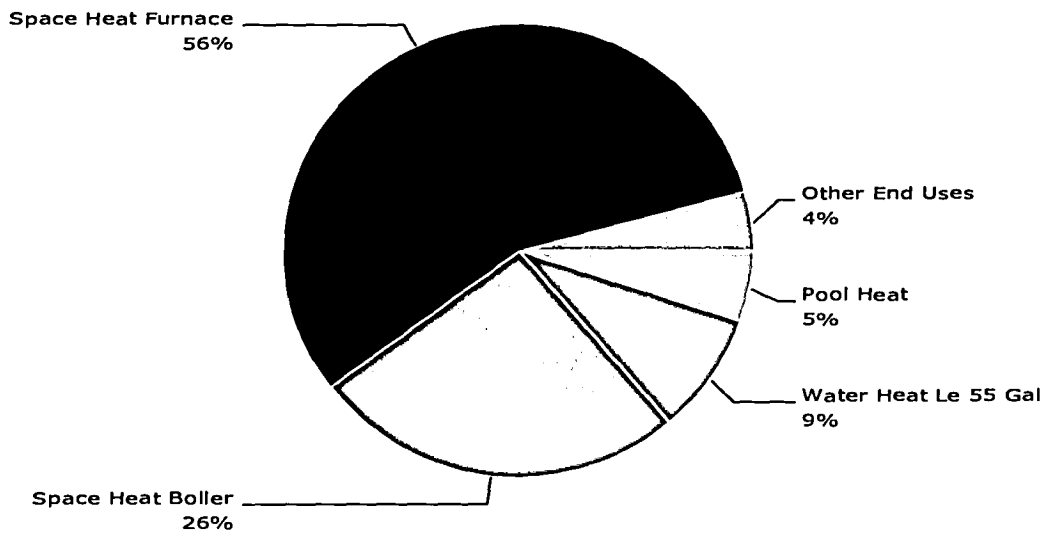


Figure E.26 Gas Achievable Economic Potential: Commercial School by End Use

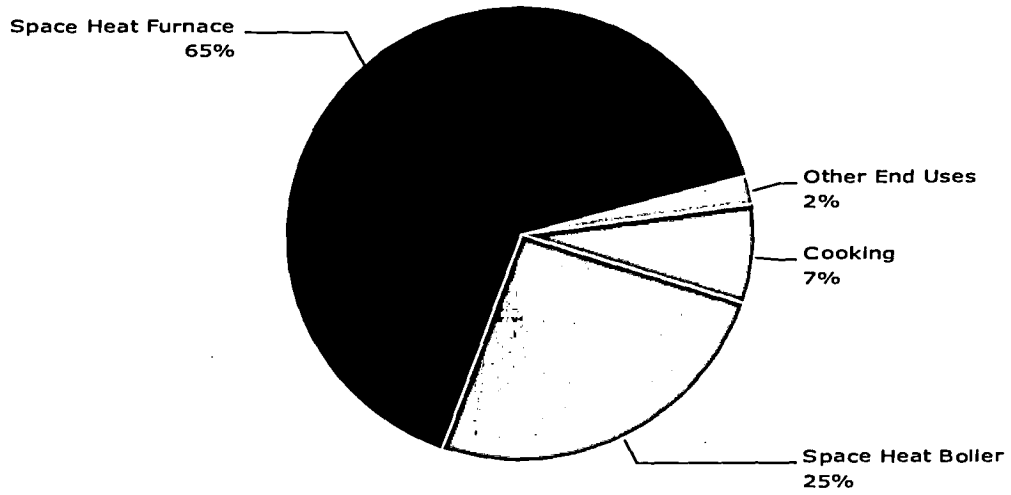
Total: 542,346 Therms



Note: 'Other End Uses' Includes:
Water Heat Gt 55 Gal: 3%, Cooking: <1%

Figure E.27 Gas Achievable Economic Potential: Commercial Grocery by End Use

Total: 13,379 Therms



Note: 'Other End Uses' Includes:
Water Heat Le 55 Gal: 1%, Water Heat Gt 55 Gal: <1%

Figure E.28 Gas Achievable Economic Potential: Commercial Health by End Use

Total: 1,454,869 Therms

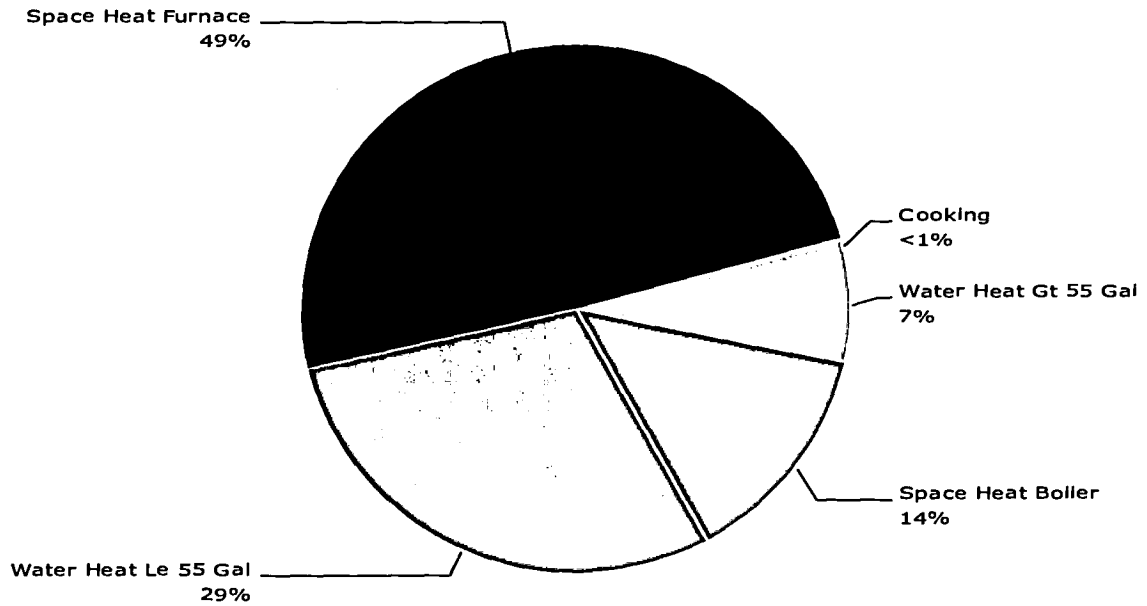


Figure E.29 Gas Achievable Economic Potential: Commercial Lodging by End Use

Total: 860,080 Therms

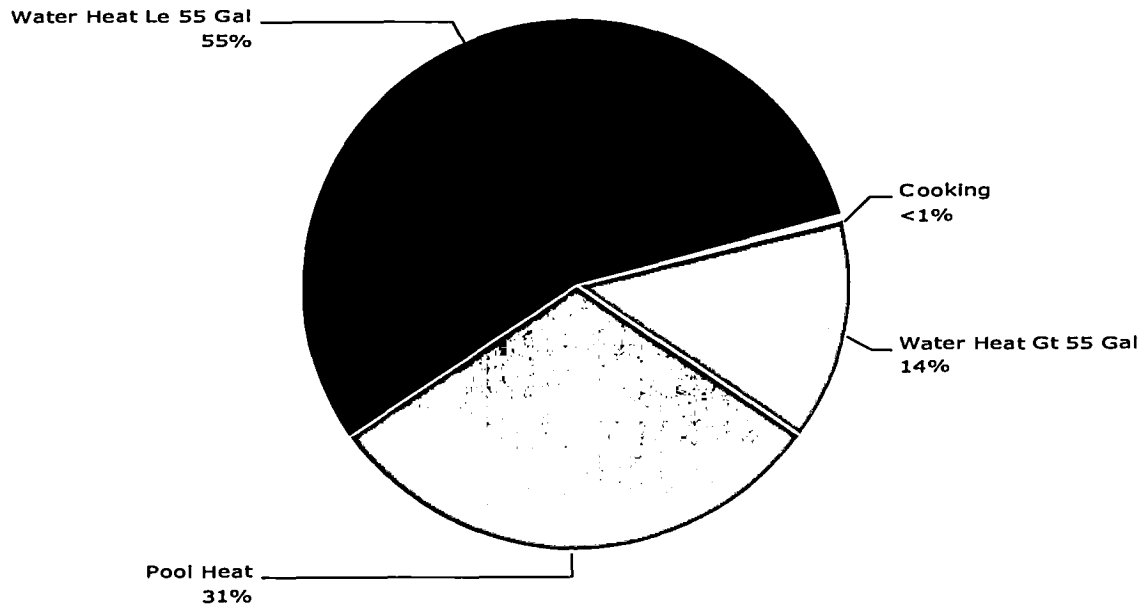
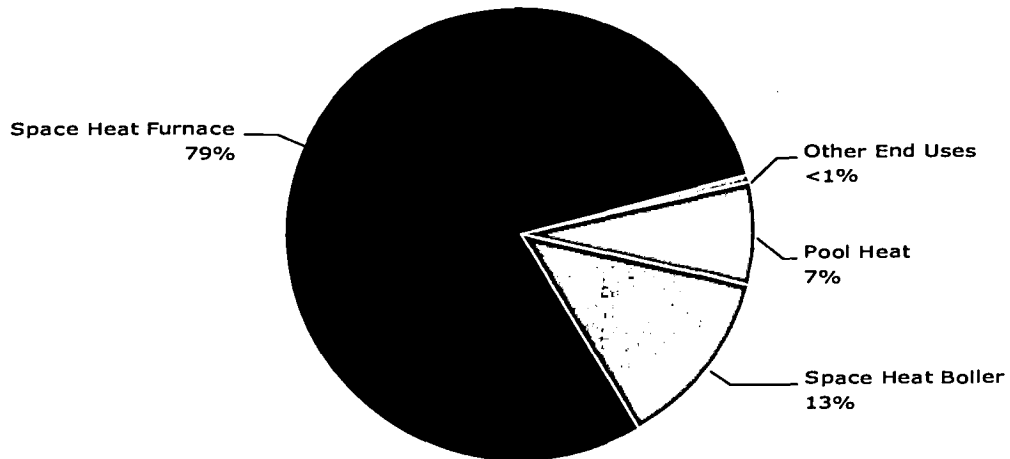


Figure E.30 Gas Achievable Economic Potential: Commercial Miscellaneous by End Use

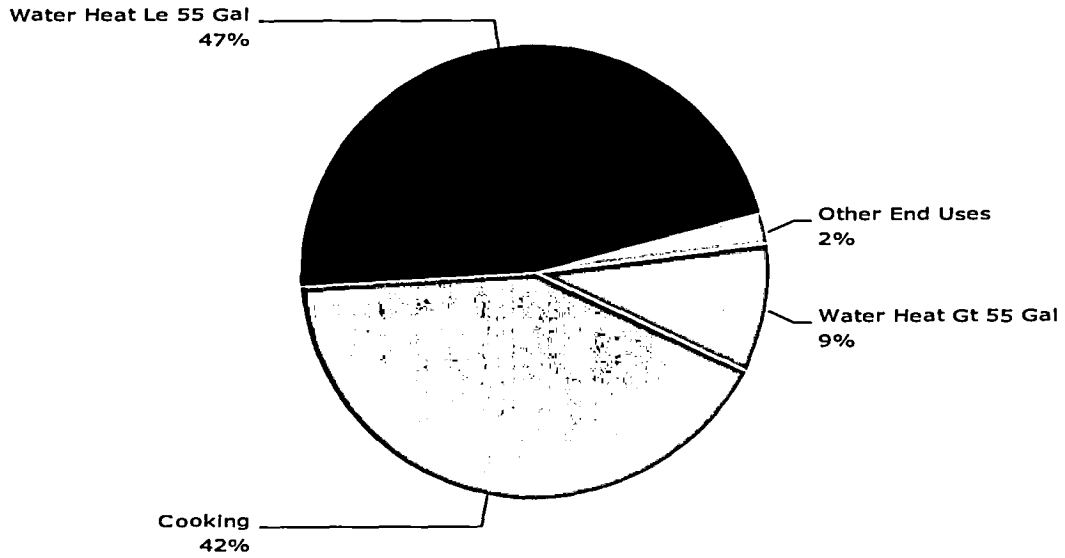
Total: 2,452,027 Therms



Note: 'Other End Uses' Includes:
Water Heat Le 55 Gal: <1%, Water Heat Gt 55 Gal: <1%, Cooking: <1%

Figure E.33 Gas Achievable Economic Potential: Commercial Restaurant by End Use

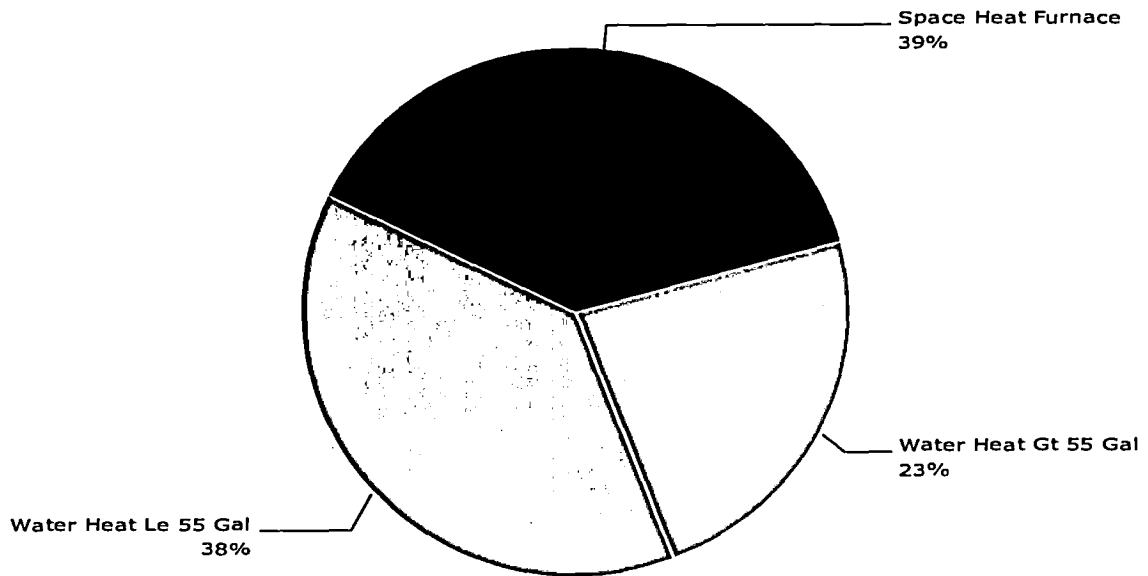
Total: 397,659 Therms



Note: 'Other End Uses' Includes:
Space Heat Furnace: 2%, Space Heat Boiler: <1%

Figure E.36 Gas Achievable Economic Potential: Commercial Warehouse by End Use

Total: 13,301 Therms



Appendix F. Measure Details

Appendix F is a comprehensive list of the energy efficiency measures considered. For each measure, the following are provided:

- **Measure Description:** Technical description of the measure, including measure efficiency.
- **Baseline Description:** Description of measure baseline used to calculate incremental costs and first-year kWh/therm savings.
- **Unit Description:** Units for savings and incremental costs.
- **Construction Vintage:** New or existing construction.
- **Savings Per Unit (kWh or Therm):** First-year kWh or therm savings, without interactions
- **Measure Life:** Expected life of measure.
- **Incremental Cost Per Unit:** Includes incremental equipment, labor, and present value O&M.
- **Percent of Installations Technically Feasible:** The proportion of units (homes, buildings, equipment, etc.) that can receive the measure. Accounts for technical limitations of installing the measure.
- **Percent of Installations Incomplete:** Proportion of units (homes, buildings, equipment, etc.) that have not received the measure.
- **Levelized Cost:** Cost(\$)¹ per kWh or therm saved.
- **2033 Cumulative Achievable Potential:** Represents the cumulative annual energy savings in 2033.

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Computer	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Installation	Existing	76	4	\$17	100%	N/A	\$0.08	0.00
Electric	Manufactured	Computer	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Installation	New	76	4	\$17	100%	N/A	\$0.08	0.00
Electric	Manufactured	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	Existing	2	19	\$66	100%	N/A	\$2.83	0.00
Electric	Manufactured	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	New	2	19	\$66	100%	N/A	\$2.83	0.00
Electric	Manufactured	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	208	18	\$1,585	2.5%	95%	\$0.90	0.00
Electric	Manufactured	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	124	40	\$1,502	75%	64%	\$1.07	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	359	15	\$1,160	100%	N/A	\$0.42	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	198	15	\$580	100%	N/A	\$0.38	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	532	15	\$1,934	100%	N/A	\$0.47	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	137	15	\$386	100%	N/A	\$0.37	0.00
Electric	Manufactured	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	1,634	15	\$-1429.6053	0.3%	N/A	\$-0.11	266,833
Electric	Manufactured	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	43	20	\$130	50%	100%	\$0.33	0.00
Electric	Manufactured	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	30	40	\$155	100%	64%	\$0.46	0.00
Electric	Manufactured	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	17	40	\$41	100%	64%	\$0.21	0.00
Electric	Manufactured	Cool Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	387	18	\$1,162	25%	64%	\$0.35	0.00
Electric	Manufactured	Cool Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	72	11	\$33	100%	100%	\$0.07	7,669,606
Electric	Manufactured	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	Existing	218	18	\$262	95%	65%	\$0.14	0.00
Electric	Manufactured	Cool Central	Tune-up - Central Air Conditioner	Central Air Conditioner with Tune-up	Central Air Conditioner with no Tune-up	Savings Per Building	Existing	156	5	\$300	95%	75%	\$0.56	0.00
Electric	Manufactured	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	47	40	\$220	0.0%	95%	\$0.42	0.00
Electric	Manufactured	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	257	40	\$1,245	75%	64%	\$0.43	0.00
Electric	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	312	20	\$455	50%	95%	\$0.16	0.00
Electric	Manufactured	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	72	11	\$172	95%	100%	\$0.38	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	100	25	\$5,374	95%	59%	\$5.43	0.00
Electric	Manufactured	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	122	25	\$9,363	95%	100%	\$7.78	0.00
Electric	Manufactured	Cool Central	Window Film	Window Film	No Film	Savings Per Building	Existing	156	10	\$797	50%	90%	\$0.87	0.00
Electric	Manufactured	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	110	18	\$1,585	20%	95%	\$1.69	0.00
Electric	Manufactured	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	12	40	\$305	95%	64%	\$2.23	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	211	15	\$1,160	100%	N/A	\$0.72	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	116	15	\$580	100%	N/A	\$0.65	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	312	15	\$1,934	100%	N/A	\$0.81	0.00
Electric	Manufactured	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	80	15	\$386	100%	N/A	\$0.63	0.00
Electric	Manufactured	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	842	15	\$-1429.6053	0.3%	N/A	\$-0.22	28,763
Electric	Manufactured	Cool Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	144	40	\$2,465	0.0%	%%	\$1.52	0.00
Electric	Manufactured	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	23	20	\$130	50%	100%	\$0.62	0.00
Electric	Manufactured	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	21	40	\$155	100%	64%	\$0.64	0.00
Electric	Manufactured	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	12	40	\$41	100%	64%	\$0.29	0.00
Electric	Manufactured	Cool Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	55	40	\$19,658	5.0%	%%	\$31.49	0.00
Electric	Manufactured	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	New	116	18	\$262	95%	65%	\$0.27	0.00
Electric	Manufactured	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	32	40	\$212	75%	90%	\$0.58	0.00
Electric	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	166	20	\$455	50%	95%	\$0.31	0.00
Electric	Manufactured	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	38	11	\$172	95%	100%	\$0.71	0.00
Electric	Manufactured	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	18	25	\$1,630	95%	59%	\$8.74	0.00
Electric	Manufactured	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	37	25	\$6,474	95%	100%	\$17.35	0.00
Electric	Manufactured	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	34	40	\$1,502	75%	64%	\$3.85	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$130	50%	100%	\$2.20	0.00
Electric	Manufactured	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	8	40	\$155	100%	64%	\$1.64	0.00
Electric	Manufactured	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	4	40	\$41	100%	64%	\$0.74	0.00
Electric	Manufactured	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	69	15	\$5,691	50%	N/A	\$9.37	0.00
Electric	Manufactured	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Manufactured	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	13	40	\$220	0.0%	95%	\$1.50	0.00
Electric	Manufactured	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	71	40	\$1,245	75%	64%	\$1.55	0.00
Electric	Manufactured	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	11	11	\$172	95%	100%	\$2.49	0.00
Electric	Manufactured	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	27	25	\$5,374	95%	59%	\$19.56	0.00
Electric	Manufactured	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	6	25	\$1,342	95%	59%	\$22.47	0.00
Electric	Manufactured	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	34	25	\$9,363	95%	100%	\$27.99	0.00
Electric	Manufactured	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	12	25	\$5,331	95%	100%	\$44.63	0.00
Electric	Manufactured	Cool Room	Window Film	Window Film	No Film	Savings Per Building	Existing	23	10	\$797	50%	90%	\$5.75	0.00
Electric	Manufactured	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	4	40	\$305	95%	64%	\$6.25	0.00
Electric	Manufactured	Cool Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	40	40	\$2,465	0.0%	***	\$5.35	0.00
Electric	Manufactured	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$130	50%	100%	\$2.20	0.00
Electric	Manufactured	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	7	40	\$155	100%	64%	\$1.79	0.00
Electric	Manufactured	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	4	40	\$41	100%	64%	\$0.81	0.00
Electric	Manufactured	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	69	15	\$5,691	95%	N/A	\$10.64	0.00
Electric	Manufactured	Cool Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	15	40	\$19,658	5.0%	***	\$111.00	0.00
Electric	Manufactured	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Manufactured	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	11	40	\$212	75%	90%	\$1.63	0.00
Electric	Manufactured	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	11	11	\$172	95%	100%	\$2.49	0.00
Electric	Manufactured	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	6	25	\$1,630	95%	59%	\$24.47	0.00
Electric	Manufactured	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	13	25	\$6,474	95%	100%	\$48.59	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	Existing	125	6	\$1.00	100%	N/A	\$0.00	72,298
Electric	Manufactured	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	New	125	6	\$1.00	100%	N/A	\$0.00	14,889
Electric	Manufactured	DVD	DVD Player - ENERGY STAR	ENERGY STAR DVD Player	Standard DVD Player	Per Installation	Existing	18	3	\$8	100%	N/A	\$0.21	0.00
Electric	Manufactured	DVD	DVD Player - ENERGY STAR	ENERGY STAR DVD Player	Standard DVD Player	Per Installation	New	18	3	\$8	100%	N/A	\$0.21	0.00
Electric	Manufactured	Dehumidifier	Dehumidifier - High Efficiency	High Efficiency Dehumidifier	Federal Standard 2013 Dehumidifier	Per Installation	Existing	77	12	\$44	100%	N/A	\$0.09	0.00
Electric	Manufactured	Dehumidifier	Dehumidifier - High Efficiency	High Efficiency Dehumidifier	Federal Standard 2013 Dehumidifier	Per Installation	New	77	12	\$44	100%	N/A	\$0.09	0.00
Electric	Manufactured	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	143	11	\$296	100%	N/A	\$0.33	0.00
Electric	Manufactured	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	131	11	\$267	100%	N/A	\$0.32	0.00
Electric	Manufactured	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	143	11	\$296	100%	N/A	\$0.33	4
Electric	Manufactured	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	131	11	\$267	100%	N/A	\$0.32	-94.646544
Electric	Manufactured	Freezer	Freezer - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Installation	Existing	46	12	\$6	100%	N/A	\$0.02	0.00
Electric	Manufactured	Freezer	Freezer - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Installation	Existing	128	12	\$3	100%	N/A	\$0.00	0.00
Electric	Manufactured	Freezer	Freezer - Removal of Stand-Alone	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Savings Per Building	Existing	916	5	\$30	43%	100%	\$0.01	9,377,752
Electric	Manufactured	Freezer	Freezer - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Installation	New	46	12	\$6	100%	N/A	\$0.02	0.00
Electric	Manufactured	Freezer	Freezer - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Installation	New	128	12	\$3	100%	N/A	\$0.00	0.00
Electric	Manufactured	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	1,122	18	\$1,585	2.5%	95%	\$0.17	0.00
Electric	Manufactured	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,509	40	\$1,502	75%	64%	\$0.09	0.00
Electric	Manufactured	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	366	40	\$155	100%	64%	\$0.04	13,502,416
Electric	Manufactured	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	216	40	\$41	100%	64%	\$0.02	10,845,221
Electric	Manufactured	Heat Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,739	18	\$1,162	25%	64%	\$0.08	0.00
Electric	Manufactured	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	2,049	40	\$1,071	25%	64%	\$0.05	0.00
Electric	Manufactured	Heat Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	139	11	\$220	75%	70%	\$0.25	0.00
Electric	Manufactured	Heat Central	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	429	40	\$135	0.0%	64%	\$0.03	0.00
Electric	Manufactured	Heat Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	327	11	\$33	100%	100%	\$0.02	25,349,041
Electric	Manufactured	Heat Central	Tune-up - Furnace (Electric)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	982	18	\$262	95%	75%	\$0.03	39,413,036
Electric	Manufactured	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	569	40	\$220	0.0%	95%	\$0.03	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	3,120	40	\$1,245	75%	64%	\$0.04	2,521,449
Electric	Manufactured	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	327	11	\$172	95%	100%	\$0.08	0.00
Electric	Manufactured	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,221	25	\$5,374	95%	59%	\$0.45	0.00
Electric	Manufactured	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	265	25	\$1,342	95%	59%	\$0.52	0.00
Electric	Manufactured	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,486	25	\$9,363	95%	100%	\$0.64	0.00
Electric	Manufactured	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	530	25	\$5,331	95%	100%	\$1.02	0.00
Electric	Manufactured	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	794	18	\$1,585	20%	95%	\$0.24	0.00
Electric	Manufactured	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	206	40	\$305	95%	64%	\$0.13	0.00
Electric	Manufactured	Heat Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	860	40	\$2,465	0.0%	0%	\$0.25	0.00
Electric	Manufactured	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	366	40	\$155	100%	64%	\$0.04	1,959,280
Electric	Manufactured	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	216	40	\$41	100%	64%	\$0.02	1,253,912
Electric	Manufactured	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	121	40	\$296	75%	64%	\$0.22	0.00
Electric	Manufactured	Heat Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	330	40	\$19,658	5.0%	0%	\$5.27	0.00
Electric	Manufactured	Heat Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	517	20	\$569	0.0%	95%	\$0.12	0.00
Electric	Manufactured	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	906	40	\$501	20%	75%	\$0.05	0.00
Electric	Manufactured	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	549	40	\$212	75%	90%	\$0.03	3,298,163
Electric	Manufactured	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	231	11	\$172	95%	100%	\$0.12	0.00
Electric	Manufactured	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	322	25	\$1,630	95%	59%	\$0.52	0.00
Electric	Manufactured	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	644	25	\$6,474	95%	100%	\$1.02	0.00
Electric	Manufactured	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	1,026	18	\$1,585	2.5%	95%	\$0.18	0.00
Electric	Manufactured	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	840	40	\$1,502	75%	64%	\$0.16	0.00
Electric	Manufactured	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	53	20	\$130	50%	100%	\$0.27	0.00
Electric	Manufactured	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	203	40	\$155	100%	64%	\$0.07	5,134,644
Electric	Manufactured	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	120	40	\$41	100%	64%	\$0.03	3,644,898
Electric	Manufactured	Heat Pump	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,674	18	\$1,162	25%	64%	\$0.08	10,388,134
Electric	Manufactured	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	971	40	\$1,071	25%	64%	\$0.10	5,847,280
Electric	Manufactured	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	902	15	\$1,011	100%	N/A	\$0.15	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/VEER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	617	15	\$758	100%	N/A	\$0.16	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/VEER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,835	15	\$2,527	100%	N/A	\$0.18	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/VEER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	556	15	\$505	100%	N/A	\$0.12	-13837.036704
Electric	Manufactured	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/VEER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,352	15	\$1,516	100%	N/A	\$0.15	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	3,251	15	\$6,441	25%	N/A	\$0.26	0.00
Electric	Manufactured	Heat Pump	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	72	11	\$220	75%	70%	\$0.48	0.00
Electric	Manufactured	Heat Pump	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	203	40	\$135	0.0%	64%	\$0.06	0.00
Electric	Manufactured	Heat Pump	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	315	11	\$33	100%	100%	\$0.02	15,504,202
Electric	Manufactured	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	1,036	15	\$412	95%	65%	\$0.05	23,101,373
Electric	Manufactured	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	309	5	\$300	20%	75%	\$0.28	0.00
Electric	Manufactured	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	317	40	\$220	0.0%	95%	\$0.06	0.00
Electric	Manufactured	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,736	40	\$1,245	75%	64%	\$0.06	36,101,137
Electric	Manufactured	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	270	20	\$455	50%	95%	\$0.19	0.00
Electric	Manufactured	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	315	11	\$172	95%	100%	\$0.09	0.00
Electric	Manufactured	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	679	25	\$5,374	95%	59%	\$0.81	0.00
Electric	Manufactured	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	147	25	\$1,342	95%	59%	\$0.93	0.00
Electric	Manufactured	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	827	25	\$9,363	95%	100%	\$1.15	0.00
Electric	Manufactured	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	295	25	\$5,331	95%	100%	\$1.84	0.00
Electric	Manufactured	Heat Pump	Window Film	Window Film	No Film	Savings Per Building	Existing	675	10	\$797	50%	90%	\$0.20	0.00
Electric	Manufactured	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	774	18	\$1,585	20%	95%	\$0.24	0.00
Electric	Manufactured	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	97	40	\$305	95%	64%	\$0.28	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Heat Pump	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	883	40	\$2,465	0.0%	**%	\$0.25	0.00
Electric	Manufactured	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	40	20	\$130	50%	100%	\$0.36	0.00
Electric	Manufactured	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	174	40	\$155	100%	64%	\$0.08	589,525
Electric	Manufactured	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	103	40	\$41	100%	64%	\$0.04	389,655
Electric	Manufactured	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	50	40	\$296	75%	64%	\$0.52	0.00
Electric	Manufactured	Heat Pump	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	339	40	\$19,658	5.0%	**%	\$5.14	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	694	15	\$1,011	100%	N/A	\$0.19	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	469	15	\$758	100%	N/A	\$0.21	5
Electric	Manufactured	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,408	15	\$2,527	100%	N/A	\$0.23	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	433	15	\$505	100%	N/A	\$0.15	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,046	15	\$1,516	100%	N/A	\$0.19	0.00
Electric	Manufactured	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	2,560	15	\$6,543	50%	N/A	\$0.33	0.00
Electric	Manufactured	Heat Pump	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	406	20	\$569	0.0%	95%	\$0.16	0.00
Electric	Manufactured	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	787	15	\$412	95%	65%	\$0.07	2,435,266
Electric	Manufactured	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	377	40	\$501	20%	75%	\$0.12	286,255
Electric	Manufactured	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	260	40	\$212	75%	90%	\$0.07	961,731
Electric	Manufactured	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	203	20	\$455	50%	95%	\$0.25	0.00
Electric	Manufactured	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	237	11	\$172	95%	100%	\$0.12	1,152,305
Electric	Manufactured	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	153	25	\$1,630	95%	59%	\$1.08	0.00
Electric	Manufactured	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	306	25	\$6,474	95%	100%	\$2.15	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	377	40	\$1,502	75%	64%	\$0.35	0.00
Electric	Manufactured	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	91	40	\$155	100%	64%	\$0.15	0.00
Electric	Manufactured	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	54	40	\$41	100%	64%	\$0.07	0.00
Electric	Manufactured	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	4,745	15	\$4,525	50%	N/A	\$0.12	0.00
Electric	Manufactured	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	2,049	40	\$1,071	25%	64%	\$0.05	0.00
Electric	Manufactured	Heat Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	106	11	\$220	75%	70%	\$0.33	0.00
Electric	Manufactured	Heat Room	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	429	40	\$135	0.0%	64%	\$0.03	0.00
Electric	Manufactured	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	142	40	\$220	0.0%	95%	\$0.14	0.00
Electric	Manufactured	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	780	40	\$1,245	75%	64%	\$0.14	0.00
Electric	Manufactured	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	248	11	\$172	95%	100%	\$0.11	0.00
Electric	Manufactured	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	305	25	\$5,374	95%	59%	\$1.79	0.00
Electric	Manufactured	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	66	25	\$1,342	95%	59%	\$2.06	0.00
Electric	Manufactured	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	371	25	\$9,363	95%	100%	\$2.57	0.00
Electric	Manufactured	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	132	25	\$5,331	95%	100%	\$4.09	0.00
Electric	Manufactured	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	51	40	\$305	95%	64%	\$0.53	0.00
Electric	Manufactured	Heat Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	653	40	\$2,465	0.0%	**%	\$0.33	0.00
Electric	Manufactured	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	91	40	\$155	100%	64%	\$0.15	0.00
Electric	Manufactured	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	54	40	\$41	100%	64%	\$0.07	0.00
Electric	Manufactured	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	New	3,358	15	\$4,525	95%	N/A	\$0.18	0.00
Electric	Manufactured	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	121	40	\$296	75%	64%	\$0.22	0.00
Electric	Manufactured	Heat Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	251	40	\$19,658	5.0%	**%	\$6.94	0.00
Electric	Manufactured	Heat Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	399	20	\$569	0.0%	95%	\$0.16	0.00
Electric	Manufactured	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	906	40	\$501	20%	75%	\$0.05	0.00
Electric	Manufactured	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	137	40	\$212	75%	90%	\$0.14	0.00
Electric	Manufactured	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	176	11	\$172	95%	100%	\$0.16	0.00
Electric	Manufactured	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	80	25	\$1,630	95%	59%	\$2.06	0.00
Electric	Manufactured	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	161	25	\$6,474	95%	100%	\$4.09	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Home Audio System	Home Audio System - ENERGY STAR	ENERGY STAR Homes Audio System	Standard Homes Audio System	Per Installation	Existing	22	7	\$106	100%	N/A	\$1.08	0.00
Electric	Manufactured	Home Audio System	Home Audio System - ENERGY STAR	ENERGY STAR Homes Audio System	Standard Homes Audio System	Per Installation	New	22	7	\$106	100%	N/A	\$1.08	0.00
Electric	Manufactured	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	7	\$1	50%	N/A	\$-0.04	10,260,688
Electric	Manufactured	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	28	12	\$37	85%	N/A	\$0.15	0.00
Electric	Manufactured	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	25	7	\$1	50%	N/A	\$-0.04	1,556,015
Electric	Manufactured	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	28	12	\$37	85%	N/A	\$0.15	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	11	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	34	12	\$21	100%	N/A	\$0.08	0.00
Electric	Manufactured	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	Existing	6	10	\$60	2.5%	95%	\$1.67	0.00
Electric	Manufactured	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	Existing	4	10	\$68	10%	80%	\$2.82	0.00
Electric	Manufactured	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	Existing	4	10	\$68	2.3%	70%	\$2.82	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	11	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Manufactured	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	34	12	\$21	100%	N/A	\$0.08	0.00
Electric	Manufactured	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	New	6	10	\$60	2.5%	95%	\$1.67	0.00
Electric	Manufactured	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	New	4	10	\$68	10%	80%	\$2.82	0.00
Electric	Manufactured	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	New	4	10	\$68	2.3%	70%	\$2.82	0.00
Electric	Manufactured	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	Existing	14	5	\$1.00	100%	N/A	\$0.02	140,973
Electric	Manufactured	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	New	14	5	\$1.00	100%	N/A	\$0.02	34,665

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	Existing	149	6	\$1.00	100%	N/A	\$0.00	1,368,058
Electric	Manufactured	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	New	149	6	\$1.00	100%	N/A	\$0.00	0.00
Electric	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard Power Strip	Savings Per Building	Existing	43	4	\$22	20%	85%	\$0.18	0.00
Electric	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard Power Strip	Savings Per Building	New	43	4	\$22	20%	85%	\$0.18	0.00
Electric	Manufactured	Printer	Office Printer - ENERGY STAR	ENERGY STAR Office Printer	Standard Office Printer	Per Installation	Existing	91	5	\$1.00	100%	N/A	\$0.00	0.00
Electric	Manufactured	Printer	Office Printer - ENERGY STAR	ENERGY STAR Office Printer	Standard Office Printer	Per Installation	New	91	5	\$1.00	100%	N/A	\$0.00	0.00
Electric	Manufactured	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	139	10	\$472	100%	N/A	\$0.57	0.00
Electric	Manufactured	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	167	10	\$633	100%	N/A	\$0.64	0.00
Electric	Manufactured	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	111	12	\$37	100%	N/A	\$0.05	3,922,433
Electric	Manufactured	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	55	12	\$22	100%	N/A	\$0.06	0.00
Electric	Manufactured	Refrigerator	Refrigerator - Removal of Secondary	Proper Disposal of Refrigerator	Existing Non-Efficient Refrigerator	Savings Per Building	Existing	1,140	5	\$30	9.5%	100%	\$0.01	6,814,861
Electric	Manufactured	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	139	12	\$472	100%	N/A	\$0.51	0.00
Electric	Manufactured	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	167	12	\$633	100%	N/A	\$0.57	0.00
Electric	Manufactured	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	111	12	\$37	100%	N/A	\$0.05	657,395
Electric	Manufactured	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	55	12	\$22	100%	N/A	\$0.06	0.00
Electric	Manufactured	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	Existing	201	5	\$6	100%	N/A	\$0.01	7,107,487
Electric	Manufactured	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	New	201	5	\$6	100%	N/A	\$0.01	703,723
Electric	Manufactured	TV	TV - ENERGY STAR	ENERGY STAR TV	Standard TV	Per Installation	Existing	130	5	\$42	100%	N/A	\$0.09	0.00
Electric	Manufactured	TV	TV - ENERGY STAR	ENERGY STAR TV	Standard TV	Per Installation	New	130	5	\$42	100%	N/A	\$0.09	0.00
Electric	Manufactured	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	207	20	\$120	100%	N/A	\$0.06	0.00
Electric	Manufactured	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	207	20	\$120	100%	N/A	\$0.06	0.00
Electric	Manufactured	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	2,137	13	\$1,684	50%	N/A	\$0.12	0.00
Electric	Manufactured	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	51	13	\$1,003	50%	N/A	\$3.29	0.00
Electric	Manufactured	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,117	20	\$5,517	20%	N/A	\$0.31	0.00
Electric	Manufactured	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	2,137	13	\$1,684	50%	N/A	\$0.12	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Water Heat Gt 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	51	13	\$1,003	50%	N/A	\$3.29	0.00
Electric	Manufactured	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,117	20	\$5,517	20%	N/A	\$0.31	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	211	11	\$140	98%	82%	\$0.11	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	75	11	\$58	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	369	11	\$210	98%	82%	\$0.09	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	274	11	\$198	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	139	11	\$116	98%	82%	\$0.13	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	432	11	\$268	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	293	11	\$152	98%	82%	\$0.08	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	157	11	\$70	98%	82%	\$0.07	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	50	11	\$161	52%	62%	\$0.51	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	10	11	\$7	52%	62%	\$0.12	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	88	11	\$309	52%	62%	\$0.56	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	47	11	\$155	52%	62%	\$0.52	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	40	11	\$154	52%	62%	\$0.61	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	415	40	\$935	30%	0%	\$0.20	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	121	10	\$5	100%	25%	\$0.01	551,486
Electric	Manufactured	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	106	10	\$1	66%	65%	\$0.00	828,056
Electric	Manufactured	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	258	10	\$8	66%	95%	\$0.01	2,939,146
Electric	Manufactured	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	322	10	\$12	100%	65%	\$0.01	3,792,025
Electric	Manufactured	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	322	10	\$37	100%	10%	\$0.02	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	90%	30%	\$0.01	223,416
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	211	11	\$140	98%	82%	\$0.11	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	75	11	\$58	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	369	11	\$210	98%	82%	\$0.09	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	274	11	\$198	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	139	11	\$116	98%	82%	\$0.13	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	432	11	\$268	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	293	11	\$152	98%	82%	\$0.08	0.00

Table F.1. Residential Energy Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	157	11	\$70	98%	82%	\$0.07	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	50	11	\$161	52%	62%	\$0.51	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	10	11	\$7	52%	62%	\$0.12	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	88	11	\$309	52%	62%	\$0.56	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	47	11	\$155	52%	62%	\$0.52	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	40	11	\$154	52%	62%	\$0.61	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	413	40	\$935	60%	***	\$0.20	0.00
Electric	Manufactured	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	106	10	\$1	66%	65%	\$0.00	116.877
Electric	Manufactured	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	258	10	\$8	66%	95%	\$0.01	414.849
Electric	Manufactured	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	322	10	\$12	100%	65%	\$0.01	535.230
Electric	Manufactured	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Manufactured	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,812	13	\$1,123	50%	N/A	\$0.10	0.00
Electric	Manufactured	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,117	20	\$5,517	20%	N/A	\$0.31	0.00
Electric	Manufactured	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	107	13	\$72	100%	N/A	\$0.10	0.00
Electric	Manufactured	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,812	13	\$1,123	50%	N/A	\$0.10	0.00
Electric	Manufactured	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,117	20	\$5,517	20%	N/A	\$0.31	0.00
Electric	Manufactured	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	107	13	\$72	100%	N/A	\$0.10	-230.907468

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	211	11	\$140	98%	82%	\$0.11	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	75	11	\$58	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	369	11	\$210	98%	82%	\$0.09	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	274	11	\$198	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	139	11	\$116	98%	82%	\$0.13	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	432	11	\$268	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	293	11	\$152	98%	82%	\$0.08	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	157	11	\$70	98%	82%	\$0.07	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	50	11	\$161	52%	62%	\$0.51	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	10	11	\$7	52%	62%	\$0.12	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	88	11	\$309	52%	62%	\$0.56	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	47	11	\$155	52%	62%	\$0.52	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	40	11	\$154	52%	62%	\$0.61	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	415	40	\$935	30%	0%	\$0.20	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	121	10	\$5	100%	25%	\$0.01	3,525,160
Electric	Manufactured	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	106	10	\$1	66%	65%	\$0.00	5,293,027
Electric	Manufactured	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	258	10	\$8	66%	95%	\$0.01	18,787,341
Electric	Manufactured	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	322	10	\$12	100%	65%	\$0.01	24,239,034
Electric	Manufactured	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	322	10	\$37	100%	10%	\$0.02	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	90%	30%	\$0.01	1,428,101
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	211	11	\$140	98%	82%	\$0.11	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	75	11	\$58	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	369	11	\$210	98%	82%	\$0.09	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	274	11	\$198	98%	82%	\$0.12	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	139	11	\$116	98%	82%	\$0.13	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	432	11	\$268	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	135	11	\$81	98%	82%	\$0.10	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	293	11	\$152	98%	82%	\$0.08	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	157	11	\$70	98%	82%	\$0.07	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	135	11	\$81	98%	82%	\$0.10	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	50	11	\$161	52%	62%	\$0.51	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	10	11	\$7	52%	62%	\$0.12	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	88	11	\$309	52%	62%	\$0.56	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	47	11	\$155	52%	62%	\$0.52	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	40	11	\$154	52%	62%	\$0.61	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	397	40	\$935	60%	**%	\$0.21	0.00
Electric	Manufactured	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	106	10	\$1	66%	65%	\$0.00	735,423
Electric	Manufactured	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	258	10	\$8	66%	95%	\$0.01	2,610,348
Electric	Manufactured	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	322	10	\$12	100%	65%	\$0.01	3,367,816
Electric	Manufactured	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Multifamily	Computer	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Installation	Existing	76	4	\$17	100%	N/A	\$0.08	0.00
Electric	Multifamily	Computer	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Installation	New	76	4	\$17	100%	N/A	\$0.08	0.00
Electric	Multifamily	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	Existing	2	19	\$66	100%	N/A	\$2.83	0.00
Electric	Multifamily	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	New	2	19	\$66	100%	N/A	\$2.83	0.00
Electric	Multifamily	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	141	18	\$1,585	2.5%	95%	\$1.32	0.00
Electric	Multifamily	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	172	18	\$1,585	2.5%	95%	\$1.08	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	99	40	\$1,200	25%	62%	\$1.07	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	99	40	\$1,200	25%	62%	\$1.07	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	108	40	\$1,074	25%	62%	\$0.88	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	108	40	\$1,074	25%	62%	\$0.88	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	244	15	\$928	100%	N/A	\$0.50	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	244	15	\$928	100%	N/A	\$0.50	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	298	15	\$928	100%	N/A	\$0.41	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	298	15	\$928	100%	N/A	\$0.41	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	134	15	\$464	100%	N/A	\$0.45	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	164	15	\$464	100%	N/A	\$0.37	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	362	15	\$1,547	100%	N/A	\$0.56	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	442	15	\$1,547	100%	N/A	\$0.46	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	93	15	\$309	100%	N/A	\$0.43	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	113	15	\$309	100%	N/A	\$0.36	0.00
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	1,077	15	\$-1143.6842	0.3%	N/A	\$-0.14	425,717
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	1,077	15	\$-1143.6842	0.3%	N/A	\$-0.14	425,717
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	1,365	15	\$-1143.6842	0.3%	N/A	\$-0.11	656,774
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	1,365	15	\$-1143.6842	0.3%	N/A	\$-0.11	656,774
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	27	20	\$97	50%	100%	\$0.40	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	27	20	\$97	50%	100%	\$0.40	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	29	20	\$107	50%	100%	\$0.40	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	29	20	\$107	50%	100%	\$0.40	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	18	40	\$97	100%	62%	\$0.46	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	23	40	\$97	100%	62%	\$0.37	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	11	40	\$26	100%	62%	\$0.21	1,725,998
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	11	40	\$26	100%	62%	\$0.21	1,725,998
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	13	40	\$26	100%	62%	\$0.17	2,532,358
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	13	40	\$26	100%	62%	\$0.17	2,532,358
Electric	Multifamily	Cool Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	263	18	\$1,162	25%	62%	\$0.52	0.00
Electric	Multifamily	Cool Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	321	18	\$1,162	25%	62%	\$0.43	0.00
Electric	Multifamily	Cool Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	13	11	\$222	75%	92%	\$2.62	0.00
Electric	Multifamily	Cool Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	16	11	\$191	75%	92%	\$1.86	0.00
Electric	Multifamily	Cool Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	49	11	\$33	100%	94%	\$0.11	11,899,904
Electric	Multifamily	Cool Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	60	11	\$33	100%	94%	\$0.09	17,459,360
Electric	Multifamily	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	Existing	148	18	\$262	95%	65%	\$0.21	0.00
Electric	Multifamily	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	Existing	181	18	\$262	95%	65%	\$0.17	0.00
Electric	Multifamily	Cool Central	Tune-up - Central Air Conditioner	Central Air Conditioner with Tune-up	Central Air Conditioner with no Tune-up	Savings Per Building	Existing	106	5	\$300	95%	75%	\$0.82	0.00
Electric	Multifamily	Cool Central	Tune-up - Central Air Conditioner	Central Air Conditioner with Tune-up	Central Air Conditioner with no Tune-up	Savings Per Building	Existing	129	5	\$300	95%	75%	\$0.68	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	25	40	\$117	0.0%	95%	\$0.42	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	25	40	\$117	0.0%	95%	\$0.42	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	28	40	\$108	0.0%	95%	\$0.34	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	28	40	\$108	0.0%	95%	\$0.34	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	137	40	\$665	50%	62%	\$0.43	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	137	40	\$665	50%	62%	\$0.43	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	154	40	\$611	50%	62%	\$0.35	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	154	40	\$611	50%	62%	\$0.35	0.00
Electric	Multifamily	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	212	20	\$455	10%	95%	\$0.24	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	259	20	\$455	10%	95%	\$0.20	0.00
Electric	Multifamily	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	49	11	\$172	10%	100%	\$0.55	0.00
Electric	Multifamily	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	60	11	\$172	10%	100%	\$0.45	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	72	25	\$3,866	95%	50%	\$5.43	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	72	25	\$3,866	95%	50%	\$5.43	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	76	25	\$3,341	95%	50%	\$4.45	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	76	25	\$3,341	95%	50%	\$4.45	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	88	25	\$6,737	95%	100%	\$7.78	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	88	25	\$6,737	95%	100%	\$7.78	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	93	25	\$5,820	95%	100%	\$6.37	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	93	25	\$5,820	95%	100%	\$6.37	0.00
Electric	Multifamily	Cool Central	Window Film	Window Film	No Film	Savings Per Building	Existing	106	10	\$574	25%	90%	\$0.92	0.00
Electric	Multifamily	Cool Central	Window Film	Window Film	No Film	Savings Per Building	Existing	129	10	\$495	25%	90%	\$0.65	0.00
Electric	Multifamily	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	87	18	\$1,585	20%	95%	\$2.13	0.00
Electric	Multifamily	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	107	18	\$1,585	20%	95%	\$1.75	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	9	40	\$244	75%	62%	\$2.23	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	9	40	\$244	75%	62%	\$2.23	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	10	40	\$218	75%	62%	\$1.83	0.00
Electric	Multifamily	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	10	40	\$218	75%	62%	\$1.83	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	167	15	\$928	100%	N/A	\$0.73	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	204	15	\$928	100%	N/A	\$0.59	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	92	15	\$464	100%	N/A	\$0.66	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	112	15	\$464	100%	N/A	\$0.54	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	247	15	\$1,547	100%	N/A	\$0.82	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	302	15	\$1,547	100%	N/A	\$0.67	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	63	15	\$309	100%	N/A	\$0.63	0.00
Electric	Multifamily	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	77	15	\$309	100%	N/A	\$0.52	0.00
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	665	15	\$-1143.6842	0.3%	N/A	\$-0.22	55,255
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	665	15	\$-1143.6842	0.3%	N/A	\$-0.22	55,255
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	862	15	\$-1143.6842	0.3%	N/A	\$-0.17	90,777
Electric	Multifamily	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	New	862	15	\$-1143.6842	0.3%	N/A	\$-0.17	90,777
Electric	Multifamily	Cool Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	114	40	\$2,483	5.0%	**%	\$1.93	0.00
Electric	Multifamily	Cool Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	139	40	\$2,145	5.0%	**%	\$1.37	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	16	20	\$97	50%	100%	\$0.64	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	16	20	\$97	50%	100%	\$0.64	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	18	20	\$107	50%	100%	\$0.65	0.00
Electric	Multifamily	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	18	20	\$107	50%	100%	\$0.65	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	13	40	\$97	100%	62%	\$0.64	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	13	40	\$97	100%	62%	\$0.64	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	16	40	\$97	100%	62%	\$0.52	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	16	40	\$97	100%	62%	\$0.52	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	7	40	\$26	100%	62%	\$0.29	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	7	40	\$26	100%	62%	\$0.29	0.00
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	9	40	\$26	100%	62%	\$0.24	245,844
Electric	Multifamily	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	9	40	\$26	100%	62%	\$0.24	245,844

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	43	40	\$16,235	10%	***	\$32.82	0.00
Electric	Multifamily	Cool Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	53	40	\$14,737	10%	***	\$24.40	0.00
Electric	Multifamily	Cool Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	12	20	\$574	0.0%	95%	\$5.00	0.00
Electric	Multifamily	Cool Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	15	20	\$495	0.0%	95%	\$3.54	0.00
Electric	Multifamily	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	New	92	18	\$262	95%	65%	\$0.34	0.00
Electric	Multifamily	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	New	112	18	\$262	95%	65%	\$0.28	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	16	40	\$110	75%	90%	\$0.58	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	16	40	\$110	75%	90%	\$0.58	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	19	40	\$102	75%	90%	\$0.48	0.00
Electric	Multifamily	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	19	40	\$102	75%	90%	\$0.48	0.00
Electric	Multifamily	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	131	20	\$455	10%	95%	\$0.39	0.00
Electric	Multifamily	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	160	20	\$455	10%	95%	\$0.32	0.00
Electric	Multifamily	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	30	11	\$172	10%	100%	\$0.89	0.00
Electric	Multifamily	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	37	11	\$172	10%	100%	\$0.73	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	14	25	\$1,207	95%	50%	\$8.74	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	14	25	\$1,207	95%	50%	\$8.74	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	14	25	\$1,043	95%	50%	\$7.16	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	14	25	\$1,043	95%	50%	\$7.16	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	28	25	\$4,795	95%	100%	\$17.35	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	28	25	\$4,795	95%	100%	\$17.35	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	29	25	\$4,143	95%	100%	\$14.22	0.00
Electric	Multifamily	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	29	25	\$4,143	95%	100%	\$14.22	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	27	40	\$1,200	25%	62%	\$3.85	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	27	40	\$1,200	25%	62%	\$3.85	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	30	40	\$1,074	25%	62%	\$3.16	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	30	40	\$1,074	25%	62%	\$3.16	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$97	50%	100%	\$1.80	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$97	50%	100%	\$1.80	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$107	50%	100%	\$1.82	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$107	50%	100%	\$1.82	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	5	40	\$97	100%	62%	\$1.64	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	5	40	\$97	100%	62%	\$1.64	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	6	40	\$97	100%	62%	\$1.35	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	6	40	\$97	100%	62%	\$1.35	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	3	40	\$26	100%	62%	\$0.74	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	3	40	\$26	100%	62%	\$0.74	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	3	40	\$26	100%	62%	\$0.61	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	3	40	\$26	100%	62%	\$0.61	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	69	15	\$5,732	25%	N/A	\$9.44	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	69	15	\$5,732	50%	N/A	\$9.44	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	85	15	\$4,953	25%	N/A	\$6.68	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	85	15	\$4,953	50%	N/A	\$6.68	0.00
Electric	Multifamily	Cool Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	2	11	\$222	75%	92%	\$11.82	0.00
Electric	Multifamily	Cool Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	3	11	\$191	75%	92%	\$8.36	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	36	9	\$41	100%	N/A	\$0.21	0.00

Table F.1. Residential Technical Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	6	40	\$117	0.0%	95%	\$1.50	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	6	40	\$117	0.0%	95%	\$1.50	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	7	40	\$108	0.0%	95%	\$1.23	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	7	40	\$108	0.0%	95%	\$1.23	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	38	40	\$665	50%	62%	\$1.55	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	38	40	\$665	50%	62%	\$1.55	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	42	40	\$611	50%	62%	\$1.27	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	42	40	\$611	50%	62%	\$1.27	0.00
Electric	Multifamily	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	11	11	\$172	10%	100%	\$2.49	0.00
Electric	Multifamily	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	13	11	\$172	10%	100%	\$2.04	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	20	25	\$3,866	95%	50%	\$19.56	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	20	25	\$3,866	95%	50%	\$19.56	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	21	25	\$3,341	95%	50%	\$16.02	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	21	25	\$3,341	95%	50%	\$16.02	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	4	25	\$965	95%	50%	\$22.47	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	4	25	\$965	95%	50%	\$22.47	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	4	25	\$834	95%	50%	\$18.41	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	4	25	\$834	95%	50%	\$18.41	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	24	25	\$6,737	95%	100%	\$27.99	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	24	25	\$6,737	95%	100%	\$27.99	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	25	25	\$5,820	95%	100%	\$22.93	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	25	25	\$5,820	95%	100%	\$22.93	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	8	25	\$3,836	95%	100%	\$44.63	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	8	25	\$3,836	95%	100%	\$44.63	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	9	25	\$3,314	95%	100%	\$36.56	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	9	25	\$3,314	95%	100%	\$36.56	0.00
Electric	Multifamily	Cool Room	Window Film	Window Film	No Film	Savings Per Building	Existing	23	10	\$574	25%	90%	\$4.14	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Room	Window Film	Window Film	No Film	Savings Per Building	Existing	28	10	\$495	25%	90%	\$2.93	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	3	40	\$244	75%	62%	\$6.25	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	3	40	\$244	75%	62%	\$6.25	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	3	40	\$218	75%	62%	\$5.12	0.00
Electric	Multifamily	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	3	40	\$218	75%	62%	\$5.12	0.00
Electric	Multifamily	Cool Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	40	40	\$2,483	5.0%	**%	\$5.39	0.00
Electric	Multifamily	Cool Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	49	40	\$2,145	5.0%	**%	\$3.82	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$97	50%	100%	\$1.80	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$97	50%	100%	\$1.80	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$107	50%	100%	\$1.82	0.00
Electric	Multifamily	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$107	50%	100%	\$1.82	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	4	40	\$97	100%	62%	\$1.79	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	4	40	\$97	100%	62%	\$1.79	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	5	40	\$97	100%	62%	\$1.47	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	5	40	\$97	100%	62%	\$1.47	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	2	40	\$26	100%	62%	\$0.81	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	2	40	\$26	100%	62%	\$0.81	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	3	40	\$26	100%	62%	\$0.66	0.00
Electric	Multifamily	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	3	40	\$26	100%	62%	\$0.66	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	69	15	\$5,732	95%	N/A	\$10.72	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	69	15	\$5,732	95%	N/A	\$10.72	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	85	15	\$4,953	95%	N/A	\$7.59	0.00
Electric	Multifamily	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	85	15	\$4,953	95%	N/A	\$7.59	0.00
Electric	Multifamily	Cool Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	15	40	\$16,235	10%	**%	\$91.67	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Cool Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	19	40	\$14,737	10%	0%	\$68.16	0.00
Electric	Multifamily	Cool Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	4	20	\$574	0.0%	95%	\$13.97	0.00
Electric	Multifamily	Cool Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	5	20	\$495	0.0%	95%	\$9.89	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Multifamily	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	6	40	\$110	75%	90%	\$1.63	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	6	40	\$110	75%	90%	\$1.63	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	6	40	\$102	75%	90%	\$1.33	0.00
Electric	Multifamily	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	6	40	\$102	75%	90%	\$1.33	0.00
Electric	Multifamily	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	11	11	\$172	10%	100%	\$2.49	0.00
Electric	Multifamily	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	13	11	\$172	10%	100%	\$2.04	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	5	25	\$1,207	95%	50%	\$24.47	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	5	25	\$1,207	95%	50%	\$24.47	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	5	25	\$1,043	95%	50%	\$20.05	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	5	25	\$1,043	95%	50%	\$20.05	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	10	25	\$4,795	95%	100%	\$48.59	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	10	25	\$4,795	95%	100%	\$48.59	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	10	25	\$4,143	95%	100%	\$39.81	0.00
Electric	Multifamily	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	10	25	\$4,143	95%	100%	\$39.81	0.00
Electric	Multifamily	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	Existing	125	6	\$1.00	100%	N/A	\$0.00	49,869
Electric	Multifamily	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	Existing	125	6	\$1.00	100%	N/A	\$0.00	56,719

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	New	125	6	\$1.00	100%	N/A	\$0.00	10,270
Electric	Multifamily	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	New	125	6	\$1.00	100%	N/A	\$0.00	12,372
Electric	Multifamily	DVD	DVD Player - ENERGY STAR	ENERGY STAR DVD Player	Standard DVD Player	Per Installation	Existing	18	3	\$8	100%	N/A	\$0.21	0.00
Electric	Multifamily	DVD	DVD Player - ENERGY STAR	ENERGY STAR DVD Player	Standard DVD Player	Per Installation	New	18	3	\$8	100%	N/A	\$0.21	0.00
Electric	Multifamily	Dehumidifier	Dehumidifier - High Efficiency	High Efficiency Dehumidifier	Federal Standard 2013 Dehumidifier	Per Installation	Existing	77	12	\$44	100%	N/A	\$0.09	0.00
Electric	Multifamily	Dehumidifier	Dehumidifier - High Efficiency	High Efficiency Dehumidifier	Federal Standard 2013 Dehumidifier	Per Installation	New	77	12	\$44	100%	N/A	\$0.09	0.00
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	109	11	\$296	100%	N/A	\$0.43	0.00
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	109	11	\$296	100%	N/A	\$0.43	0.00
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	126	11	\$296	100%	N/A	\$0.37	0.00
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	126	11	\$296	100%	N/A	\$0.37	0.00
Electric	Multifamily	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	101	11	\$267	100%	N/A	\$0.42	0.00
Electric	Multifamily	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	116	11	\$267	100%	N/A	\$0.37	0.00
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	109	11	\$296	100%	N/A	\$0.43	4
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	109	11	\$296	100%	N/A	\$0.43	4
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	126	11	\$296	100%	N/A	\$0.37	0.80
Electric	Multifamily	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	126	11	\$296	100%	N/A	\$0.37	0.80
Electric	Multifamily	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	101	11	\$267	100%	N/A	\$0.42	-100.422888
Electric	Multifamily	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	116	11	\$267	100%	N/A	\$0.37	-137.5758
Electric	Multifamily	Freezer	Freezer - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Installation	Existing	46	12	\$6	100%	N/A	\$0.02	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Freezer	Freezer - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Installation	Existing	128	12	\$3	100%	N/A	\$0.00	0.00
Electric	Multifamily	Freezer	Freezer - Removal of Stand-Alone	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Savings Per Building	Existing	916	5	\$30	19%	100%	\$0.01	3,709,044
Electric	Multifamily	Freezer	Freezer - Removal of Stand-Alone	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Savings Per Building	Existing	916	5	\$30	19%	100%	\$0.01	3,950,194
Electric	Multifamily	Freezer	Freezer - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Installation	New	46	12	\$6	100%	N/A	\$0.02	0.00
Electric	Multifamily	Freezer	Freezer - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Installation	New	128	12	\$3	100%	N/A	\$0.00	0.00
Electric	Multifamily	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	703	18	\$1,585	2.5%	95%	\$0.27	0.00
Electric	Multifamily	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	755	18	\$1,585	2.5%	95%	\$0.25	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,005	40	\$1,074	25%	62%	\$0.09	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,005	40	\$1,074	25%	62%	\$0.09	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,206	40	\$1,200	25%	62%	\$0.09	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,206	40	\$1,200	25%	62%	\$0.09	0.00
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	213	40	\$97	100%	62%	\$0.04	13,537,413
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	229	40	\$97	100%	62%	\$0.04	14,354,570
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	126	40	\$26	100%	62%	\$0.02	9,081,565
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	126	40	\$26	100%	62%	\$0.02	9,081,565
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	135	40	\$26	100%	62%	\$0.02	9,699,251
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	135	40	\$26	100%	62%	\$0.02	9,699,251
Electric	Multifamily	Heat Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,090	18	\$1,162	25%	62%	\$0.13	0.00
Electric	Multifamily	Heat Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,170	18	\$1,162	25%	62%	\$0.12	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,365	40	\$765	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,365	40	\$765	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,637	40	\$855	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,637	40	\$855	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	142	11	\$191	75%	92%	\$0.21	0.00
Electric	Multifamily	Heat Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	153	11	\$222	75%	92%	\$0.23	0.00
Electric	Multifamily	Heat Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	205	11	\$33	100%	94%	\$0.03	21,908,917
Electric	Multifamily	Heat Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	220	11	\$33	100%	94%	\$0.02	23,399,060
Electric	Multifamily	Heat Central	Tune-up - Furnace (Electric)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	615	18	\$262	95%	75%	\$0.05	0.00
Electric	Multifamily	Heat Central	Tune-up - Furnace (Electric)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	660	18	\$262	95%	75%	\$0.05	0.00
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	260	40	\$108	0.0%	95%	\$0.04	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	260	40	\$108	0.0%	95%	\$0.04	0.00
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	304	40	\$117	0.0%	95%	\$0.03	0.00
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	304	40	\$117	0.0%	95%	\$0.03	0.00
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,428	40	\$611	50%	62%	\$0.04	49,009,227
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,428	40	\$611	50%	62%	\$0.04	49,009,227
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,666	40	\$665	50%	62%	\$0.04	56,909,399
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,666	40	\$665	50%	62%	\$0.04	56,909,399
Electric	Multifamily	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	205	11	\$172	10%	100%	\$0.13	0.00
Electric	Multifamily	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	220	11	\$172	10%	100%	\$0.12	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	707	25	\$3,341	95%	50%	\$0.48	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	707	25	\$3,341	95%	50%	\$0.48	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	878	25	\$3,866	95%	50%	\$0.45	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	878	25	\$3,866	95%	50%	\$0.45	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	153	25	\$834	95%	50%	\$0.55	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	153	25	\$834	95%	50%	\$0.55	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	191	25	\$965	95%	50%	\$0.52	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	191	25	\$965	95%	50%	\$0.52	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	861	25	\$5,820	95%	100%	\$0.69	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	861	25	\$5,820	95%	100%	\$0.69	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,069	25	\$6,737	95%	100%	\$0.64	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,069	25	\$6,737	95%	100%	\$0.64	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	307	25	\$3,314	95%	100%	\$1.10	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	307	25	\$3,314	95%	100%	\$1.10	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	382	25	\$3,836	95%	100%	\$1.02	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	382	25	\$3,836	95%	100%	\$1.02	0.00
Electric	Multifamily	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	489	18	\$1,585	20%	95%	\$0.38	0.00
Electric	Multifamily	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	525	18	\$1,585	20%	95%	\$0.36	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	137	40	\$218	75%	62%	\$0.14	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	137	40	\$218	75%	62%	\$0.14	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	164	40	\$244	75%	62%	\$0.13	0.00
Electric	Multifamily	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	164	40	\$244	75%	62%	\$0.13	0.00
Electric	Multifamily	Heat Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	530	40	\$2,145	5.0%	***	\$0.36	0.00
Electric	Multifamily	Heat Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	569	40	\$2,483	5.0%	***	\$0.39	0.00
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	213	40	\$97	100%	62%	\$0.04	1,767,601
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	213	40	\$97	100%	62%	\$0.04	1,767,601
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	229	40	\$97	100%	62%	\$0.04	1,776,940
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	229	40	\$97	100%	62%	\$0.04	1,776,940
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	126	40	\$26	100%	62%	\$0.02	1,111,568
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	126	40	\$26	100%	62%	\$0.02	1,111,568
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	135	40	\$26	100%	62%	\$0.02	1,121,416
Electric	Multifamily	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	135	40	\$26	100%	62%	\$0.02	1,121,416
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	80	40	\$211	75%	62%	\$0.23	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	80	40	\$211	75%	62%	\$0.23	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	96	40	\$236	75%	62%	\$0.22	0.00
Electric	Multifamily	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	96	40	\$236	75%	62%	\$0.22	0.00
Electric	Multifamily	Heat Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	204	40	\$14,737	10%	***	\$6.41	0.00
Electric	Multifamily	Heat Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	218	40	\$16,235	10%	***	\$6.58	0.00
Electric	Multifamily	Heat Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	375	20	\$495	0.0%	95%	\$0.15	0.00
Electric	Multifamily	Heat Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	403	20	\$574	0.0%	95%	\$0.16	0.00
Electric	Multifamily	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	648	40	\$358	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	648	40	\$358	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	724	40	\$400	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	724	40	\$400	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	246	40	\$102	75%	90%	\$0.04	2,309,074
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	246	40	\$102	75%	90%	\$0.04	2,309,074

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	287	40	\$110	75%	90%	\$0.03	2,523,538
Electric	Multifamily	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	287	40	\$110	75%	90%	\$0.03	2,523,538
Electric	Multifamily	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	142	11	\$172	10%	100%	\$0.19	0.00
Electric	Multifamily	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	153	11	\$172	10%	100%	\$0.18	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	192	25	\$1,043	95%	50%	\$0.55	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	192	25	\$1,043	95%	50%	\$0.55	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	238	25	\$1,207	95%	50%	\$0.52	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	238	25	\$1,207	95%	50%	\$0.52	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	384	25	\$4,143	95%	100%	\$1.10	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	384	25	\$4,143	95%	100%	\$1.10	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	477	25	\$4,795	95%	100%	\$1.02	0.00
Electric	Multifamily	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	477	25	\$4,795	95%	100%	\$1.02	0.00
Electric	Multifamily	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	646	18	\$1,585	2.5%	95%	\$0.29	0.00
Electric	Multifamily	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	648	18	\$1,585	2.5%	95%	\$0.29	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	585	40	\$1,074	25%	62%	\$0.16	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	585	40	\$1,074	25%	62%	\$0.16	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	671	40	\$1,200	25%	62%	\$0.16	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	671	40	\$1,200	25%	62%	\$0.16	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	8	20	\$97	50%	100%	\$1.28	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	8	20	\$97	50%	100%	\$1.28	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	33	20	\$107	50%	100%	\$0.36	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	33	20	\$107	50%	100%	\$0.36	0.00
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	124	40	\$97	100%	62%	\$0.07	3,291,991
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	124	40	\$97	100%	62%	\$0.07	3,291,991
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	127	40	\$97	100%	62%	\$0.07	6,788,249
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	127	40	\$97	100%	62%	\$0.07	6,788,249
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	73	40	\$26	100%	62%	\$0.03	2,056,787
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	73	40	\$26	100%	62%	\$0.03	2,056,787
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	75	40	\$26	100%	62%	\$0.03	4,266,401
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	75	40	\$26	100%	62%	\$0.03	4,266,401
Electric	Multifamily	Heat Pump	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,055	18	\$1,162	25%	62%	\$0.13	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,058	18	\$1,162	25%	62%	\$0.13	0.00
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	647	40	\$765	25%	62%	\$0.11	0.00
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	647	40	\$765	25%	62%	\$0.11	0.00
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	776	40	\$855	25%	62%	\$0.10	9,381,501
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	776	40	\$855	25%	62%	\$0.10	9,381,501
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	572	15	\$808	100%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	572	15	\$808	100%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	583	15	\$808	100%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	583	15	\$808	100%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	392	15	\$606	100%	N/A	\$0.20	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	392	15	\$606	100%	N/A	\$0.20	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	405	15	\$606	100%	N/A	\$0.20	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	405	15	\$606	100%	N/A	\$0.20	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,163	15	\$2,022	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,163	15	\$2,022	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,189	15	\$2,022	100%	N/A	\$0.22	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,189	15	\$2,022	100%	N/A	\$0.22	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	351	15	\$404	100%	N/A	\$0.15	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	351	15	\$404	100%	N/A	\$0.15	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	354	15	\$404	100%	N/A	\$0.15	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	354	15	\$404	100%	N/A	\$0.15	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	855	15	\$1,213	100%	N/A	\$0.19	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	855	15	\$1,213	100%	N/A	\$0.19	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	867	15	\$1,213	100%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	867	15	\$1,213	100%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,039	15	\$5,153	2.5%	N/A	\$0.33	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,039	15	\$5,153	2.5%	N/A	\$0.33	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,044	15	\$5,153	2.5%	N/A	\$0.33	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,044	15	\$5,153	2.5%	N/A	\$0.33	0.00
Electric	Multifamily	Heat Pump	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	97	11	\$222	75%	92%	\$0.36	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	97	11	\$191	75%	92%	\$0.31	0.00
Electric	Multifamily	Heat Pump	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	198	11	\$33	100%	94%	\$0.03	17,476,047
Electric	Multifamily	Heat Pump	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	199	11	\$33	100%	94%	\$0.03	8,670,737
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	650	15	\$412	95%	65%	\$0.08	13,671,997
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	650	15	\$412	95%	65%	\$0.08	13,671,997
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	651	15	\$412	95%	65%	\$0.08	27,719,411
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	651	15	\$412	95%	65%	\$0.08	27,719,411
Electric	Multifamily	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	200	5	\$300	20%	75%	\$0.44	0.00
Electric	Multifamily	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	200	5	\$300	20%	75%	\$0.44	0.00
Electric	Multifamily	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	216	5	\$300	20%	75%	\$0.41	0.00
Electric	Multifamily	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	216	5	\$300	20%	75%	\$0.41	0.00
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	151	40	\$108	0.0%	95%	\$0.06	0.00
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	151	40	\$108	0.0%	95%	\$0.06	0.00
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	169	40	\$117	0.0%	95%	\$0.06	0.00
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	169	40	\$117	0.0%	95%	\$0.06	0.00
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	831	40	\$611	50%	62%	\$0.07	11,538,628
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	831	40	\$611	50%	62%	\$0.07	11,538,628
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	927	40	\$665	50%	62%	\$0.06	26,016,709
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	927	40	\$665	50%	62%	\$0.06	26,016,709
Electric	Multifamily	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	170	20	\$455	5.0%	95%	\$0.30	0.00
Electric	Multifamily	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	170	20	\$455	5.0%	95%	\$0.30	0.00
Electric	Multifamily	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	198	11	\$172	10%	100%	\$0.14	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	199	11	\$172	10%	100%	\$0.14	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	411	25	\$3,341	95%	50%	\$0.83	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	411	25	\$3,341	95%	50%	\$0.83	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	488	25	\$3,866	95%	50%	\$0.81	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	488	25	\$3,866	95%	50%	\$0.81	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	89	25	\$834	95%	50%	\$0.95	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	89	25	\$834	95%	50%	\$0.95	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	106	25	\$965	95%	50%	\$0.93	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	106	25	\$965	95%	50%	\$0.93	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	501	25	\$5,820	95%	100%	\$1.18	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	501	25	\$5,820	95%	100%	\$1.18	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	595	25	\$6,737	95%	100%	\$1.15	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	595	25	\$6,737	95%	100%	\$1.15	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	179	25	\$3,314	95%	100%	\$1.89	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	179	25	\$3,314	95%	100%	\$1.89	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	212	25	\$3,836	95%	100%	\$1.84	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	212	25	\$3,836	95%	100%	\$1.84	0.00
Electric	Multifamily	Heat Pump	Window Film	Window Film	No Film	Savings Per Building	Existing	425	10	\$574	25%	90%	\$0.23	0.00
Electric	Multifamily	Heat Pump	Window Film	Window Film	No Film	Savings Per Building	Existing	426	10	\$495	25%	90%	\$0.20	0.00
Electric	Multifamily	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	495	18	\$1,585	20%	95%	\$0.38	0.00
Electric	Multifamily	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	500	18	\$1,585	20%	95%	\$0.37	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	67	40	\$218	75%	62%	\$0.29	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	67	40	\$218	75%	62%	\$0.29	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	78	40	\$244	75%	62%	\$0.28	0.00
Electric	Multifamily	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	78	40	\$244	75%	62%	\$0.28	0.00
Electric	Multifamily	Heat Pump	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	564	40	\$2,145	5.0%	***	\$0.34	0.00
Electric	Multifamily	Heat Pump	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	570	40	\$2,483	5.0%	***	\$0.39	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$97	50%	100%	\$1.68	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$97	50%	100%	\$1.68	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	26	20	\$107	50%	100%	\$0.46	0.00
Electric	Multifamily	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	26	20	\$107	50%	100%	\$0.46	0.00
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	105	40	\$97	100%	62%	\$0.08	381,535
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	105	40	\$97	100%	62%	\$0.08	381,535
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	108	40	\$97	100%	62%	\$0.08	741,572
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	108	40	\$97	100%	62%	\$0.08	741,572
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	62	40	\$26	100%	62%	\$0.04	232,125
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	62	40	\$26	100%	62%	\$0.04	232,125
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	64	40	\$26	100%	62%	\$0.04	452,195
Electric	Multifamily	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	64	40	\$26	100%	62%	\$0.04	452,195
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	33	40	\$211	75%	62%	\$0.56	0.00
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	33	40	\$211	75%	62%	\$0.56	0.00
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	40	40	\$236	75%	62%	\$0.52	0.00
Electric	Multifamily	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	40	40	\$236	75%	62%	\$0.52	0.00
Electric	Multifamily	Heat Pump	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	217	40	\$14,737	10%	***	\$6.02	0.00
Electric	Multifamily	Heat Pump	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	219	40	\$16,235	10%	***	\$6.56	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	455	15	\$808	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	455	15	\$808	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	458	15	\$808	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	458	15	\$808	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	310	15	\$606	100%	N/A	\$0.26	8
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	310	15	\$606	100%	N/A	\$0.26	8

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/VEER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	315	15	\$606	100%	N/A	\$0.25	1
Electric	Multifamily	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/VEER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	315	15	\$606	100%	N/A	\$0.25	1
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/VEER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	925	15	\$2,022	100%	N/A	\$0.29	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/VEER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	925	15	\$2,022	100%	N/A	\$0.29	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/VEER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	934	15	\$2,022	100%	N/A	\$0.28	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/VEER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	934	15	\$2,022	100%	N/A	\$0.28	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/VEER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	281	15	\$404	100%	N/A	\$0.19	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/VEER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	281	15	\$404	100%	N/A	\$0.19	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/VEER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	281	15	\$404	100%	N/A	\$0.19	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/VEER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	281	15	\$404	100%	N/A	\$0.19	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/VEER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	683	15	\$1,213	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/VEER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	683	15	\$1,213	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/VEER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/VEER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	685	15	\$1,213	100%	N/A	\$0.23	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	685	15	\$1,213	100%	N/A	\$0.23	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,632	15	\$5,234	5.0%	N/A	\$0.42	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,632	15	\$5,234	5.0%	N/A	\$0.42	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,653	15	\$5,234	5.0%	N/A	\$0.41	0.00
Electric	Multifamily	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,653	15	\$5,234	5.0%	N/A	\$0.41	0.00
Electric	Multifamily	Heat Pump	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	256	20	\$495	0.0%	95%	\$0.22	0.00
Electric	Multifamily	Heat Pump	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	259	20	\$574	0.0%	95%	\$0.25	0.00
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	498	15	\$412	95%	65%	\$0.11	0.00
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	498	15	\$412	95%	65%	\$0.11	0.00
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	506	15	\$412	95%	65%	\$0.11	2,973,712
Electric	Multifamily	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	506	15	\$412	95%	65%	\$0.11	2,973,712
Electric	Multifamily	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	269	40	\$358	20%	75%	\$0.12	0.00
Electric	Multifamily	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	269	40	\$358	20%	75%	\$0.12	0.00
Electric	Multifamily	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	301	40	\$400	20%	75%	\$0.12	450,404
Electric	Multifamily	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	301	40	\$400	20%	75%	\$0.12	450,404

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	121	40	\$102	75%	90%	\$0.07	487,282
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	121	40	\$102	75%	90%	\$0.07	487,282
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	136	40	\$110	75%	90%	\$0.07	1,028,108
Electric	Multifamily	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	136	40	\$110	75%	90%	\$0.07	1,028,108
Electric	Multifamily	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	130	20	\$455	5.0%	95%	\$0.39	0.00
Electric	Multifamily	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	131	20	\$455	5.0%	95%	\$0.39	0.00
Electric	Multifamily	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	152	11	\$172	10%	100%	\$0.18	0.00
Electric	Multifamily	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	153	11	\$172	10%	100%	\$0.18	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	94	25	\$1,043	95%	50%	\$1.12	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	94	25	\$1,043	95%	50%	\$1.12	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	113	25	\$1,207	95%	50%	\$1.08	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	113	25	\$1,207	95%	50%	\$1.08	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	189	25	\$4,143	95%	100%	\$2.23	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	189	25	\$4,143	95%	100%	\$2.23	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	226	25	\$4,795	95%	100%	\$2.15	0.00
Electric	Multifamily	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	226	25	\$4,795	95%	100%	\$2.15	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	251	40	\$1,074	25%	62%	\$0.38	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	251	40	\$1,074	25%	62%	\$0.38	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	301	40	\$1,200	25%	62%	\$0.35	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	301	40	\$1,200	25%	62%	\$0.35	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	53	40	\$97	100%	62%	\$0.16	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	53	40	\$97	100%	62%	\$0.16	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	57	40	\$97	100%	62%	\$0.15	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	57	40	\$97	100%	62%	\$0.15	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	31	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	31	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	33	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	33	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Ductless Heat Pump (DHP)	Ductless SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	2,975	15	\$3,938	25%	N/A	\$0.16	0.00
Electric	Multifamily	Heat Room	Ductless Heat Pump (DHP)	Ductless SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	2,975	15	\$3,938	25%	N/A	\$0.16	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	3,192	15	\$4,558	25%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	3,192	15	\$4,558	25%	N/A	\$0.18	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,365	40	\$765	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,365	40	\$765	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,637	40	\$855	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,637	40	\$855	25%	62%	\$0.05	0.00
Electric	Multifamily	Heat Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	108	11	\$191	75%	92%	\$0.28	0.00
Electric	Multifamily	Heat Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	116	11	\$222	75%	92%	\$0.30	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	65	40	\$108	0.0%	95%	\$0.15	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	65	40	\$108	0.0%	95%	\$0.15	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	76	40	\$117	0.0%	95%	\$0.14	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	76	40	\$117	0.0%	95%	\$0.14	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	357	40	\$611	50%	62%	\$0.15	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	357	40	\$611	50%	62%	\$0.15	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	416	40	\$665	50%	62%	\$0.14	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	416	40	\$665	50%	62%	\$0.14	0.00
Electric	Multifamily	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	155	11	\$172	10%	100%	\$0.18	0.00
Electric	Multifamily	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	167	11	\$172	10%	100%	\$0.16	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	176	25	\$3,341	95%	50%	\$1.92	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	176	25	\$3,341	95%	50%	\$1.92	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	219	25	\$3,866	95%	50%	\$1.79	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	219	25	\$3,866	95%	50%	\$1.79	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	38	25	\$834	95%	50%	\$2.21	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	38	25	\$834	95%	50%	\$2.21	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	47	25	\$965	95%	50%	\$2.06	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	47	25	\$965	95%	50%	\$2.06	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	215	25	\$5,820	95%	100%	\$2.75	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	215	25	\$5,820	95%	100%	\$2.75	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	267	25	\$6,737	95%	100%	\$2.57	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	267	25	\$6,737	95%	100%	\$2.57	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	76	25	\$3,314	95%	100%	\$4.39	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	76	25	\$3,314	95%	100%	\$4.39	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	95	25	\$3,836	95%	100%	\$4.09	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	95	25	\$3,836	95%	100%	\$4.09	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	34	40	\$218	75%	62%	\$0.57	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	34	40	\$218	75%	62%	\$0.57	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	41	40	\$244	75%	62%	\$0.53	0.00
Electric	Multifamily	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	41	40	\$244	75%	62%	\$0.53	0.00
Electric	Multifamily	Heat Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	403	40	\$2,145	5.0%	**%	\$0.47	0.00
Electric	Multifamily	Heat Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	432	40	\$2,483	5.0%	**%	\$0.51	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	53	40	\$97	100%	62%	\$0.16	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	57	40	\$97	100%	62%	\$0.15	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	31	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	31	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	33	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	33	40	\$26	100%	62%	\$0.07	0.00
Electric	Multifamily	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	New	2,070	15	\$3,938	95%	N/A	\$0.25	0.00
Electric	Multifamily	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	New	2,222	15	\$4,558	95%	N/A	\$0.27	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	80	40	\$211	75%	62%	\$0.23	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	80	40	\$211	75%	62%	\$0.23	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	96	40	\$236	75%	62%	\$0.22	0.00
Electric	Multifamily	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	96	40	\$236	75%	62%	\$0.22	0.00
Electric	Multifamily	Heat Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	155	40	\$14,737	10%	**%	\$8.44	0.00
Electric	Multifamily	Heat Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	166	40	\$16,235	10%	**%	\$8.66	0.00
Electric	Multifamily	Heat Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	301	20	\$495	0.0%	95%	\$0.18	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Heat Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	323	20	\$574	0.0%	95%	\$0.20	0.00
Electric	Multifamily	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	648	40	\$358	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	648	40	\$358	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	724	40	\$400	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	724	40	\$400	20%	75%	\$0.05	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	61	40	\$102	75%	90%	\$0.15	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	61	40	\$102	75%	90%	\$0.15	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	71	40	\$110	75%	90%	\$0.14	0.00
Electric	Multifamily	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	71	40	\$110	75%	90%	\$0.14	0.00
Electric	Multifamily	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	108	11	\$172	10%	100%	\$0.25	0.00
Electric	Multifamily	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	116	11	\$172	10%	100%	\$0.23	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	48	25	\$1,043	95%	50%	\$2.21	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	48	25	\$1,043	95%	50%	\$2.21	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	59	25	\$1,207	95%	50%	\$2.06	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	59	25	\$1,207	95%	50%	\$2.06	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	96	25	\$4,143	95%	100%	\$4.39	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	96	25	\$4,143	95%	100%	\$4.39	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	119	25	\$4,795	95%	100%	\$4.09	0.00
Electric	Multifamily	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	119	25	\$4,795	95%	100%	\$4.09	0.00
Electric	Multifamily	Home Audio System	Home Audio System - ENERGY STAR	ENERGY STAR Homes Audio System	Standard Homes Audio System	Per Installation	Existing	22	7	\$106	100%	N/A	\$1.08	0.00
Electric	Multifamily	Home Audio System	Home Audio System - ENERGY STAR	ENERGY STAR Homes Audio System	Standard Homes Audio System	Per Installation	New	22	7	\$106	100%	N/A	\$1.08	0.00
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	22	7	\$1	50%	N/A	\$-0.04	18,247,436
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	22	7	\$1	50%	N/A	\$-0.04	18,247,436
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	23	7	\$1	50%	N/A	\$-0.04	21,248,628
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	23	7	\$1	50%	N/A	\$-0.04	21,248,628
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	12	\$37	85%	N/A	\$0.17	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	12	\$37	85%	N/A	\$0.17	0.00
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	12	\$37	85%	N/A	\$0.17	0.00
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	12	\$37	85%	N/A	\$0.17	0.00
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	22	7	\$1	50%	N/A	\$-0.04	2,767,192
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	22	7	\$1	50%	N/A	\$-0.04	2,767,192
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	23	7	\$1	50%	N/A	\$-0.04	3,415,066
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	23	7	\$1	50%	N/A	\$-0.04	3,415,066
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	25	12	\$37	85%	N/A	\$0.17	0.00
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	25	12	\$37	85%	N/A	\$0.17	0.00
Electric	Multifamily	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	25	12	\$37	85%	N/A	\$0.17	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	31	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	31	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	Existing	6	10	\$60	2.5%	90%	\$1.66	0.00
Electric	Multifamily	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	Existing	6	10	\$60	2.5%	90%	\$1.66	0.00
Electric	Multifamily	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	Existing	4	10	\$68	5.0%	40%	\$2.81	0.00
Electric	Multifamily	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	Existing	4	10	\$68	5.0%	40%	\$2.80	0.00
Electric	Multifamily	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	Existing	4	10	\$68	2.3%	40%	\$2.81	0.00
Electric	Multifamily	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	Existing	4	10	\$68	2.3%	40%	\$2.80	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	10	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	\$-0.01	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	-\$0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	27	5	\$1	100%	N/A	-\$0.01	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	30	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	30	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	31	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	31	12	\$21	100%	N/A	\$0.08	0.00
Electric	Multifamily	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	New	6	10	\$60	2.5%	90%	\$1.66	0.00
Electric	Multifamily	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	New	6	10	\$60	2.5%	90%	\$1.66	0.00
Electric	Multifamily	Lighting Standard	Photocell Daylighting Control - Interior/Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	New	4	10	\$68	5.0%	40%	\$2.81	0.00
Electric	Multifamily	Lighting Standard	Photocell Daylighting Control - Interior/Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	New	4	10	\$68	5.0%	40%	\$2.80	0.00
Electric	Multifamily	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	New	4	10	\$68	2.3%	40%	\$2.81	0.00
Electric	Multifamily	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	New	4	10	\$68	2.3%	40%	\$2.80	0.00
Electric	Multifamily	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	Existing	14	5	\$1.00	100%	N/A	\$0.02	274,603
Electric	Multifamily	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	Existing	14	5	\$1.00	100%	N/A	\$0.02	351,532
Electric	Multifamily	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	New	14	5	\$1.00	100%	N/A	\$0.02	67,524
Electric	Multifamily	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	New	14	5	\$1.00	100%	N/A	\$0.02	91,557
Electric	Multifamily	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	Existing	149	6	\$1.00	100%	N/A	\$0.00	1,475,994
Electric	Multifamily	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	Existing	149	6	\$1.00	100%	N/A	\$0.00	1,678,738
Electric	Multifamily	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	New	149	6	\$1.00	100%	N/A	\$0.00	0.00
Electric	Multifamily	Plug Load Other	Smart Strip	Smart Strip	Standard Power Strip	Savings Per Building	Existing	43	4	\$22	20%	85%	\$0.18	0.00
Electric	Multifamily	Plug Load Other	Smart Strip	Smart Strip	Standard Power Strip	Savings Per Building	New	43	4	\$22	20%	85%	\$0.18	0.00
Electric	Multifamily	Printer	Office Printer - ENERGY STAR	ENERGY STAR Office Printer	Standard Office Printer	Per Installation	Existing	91	5	\$1.00	100%	N/A	\$0.00	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Printer	Office Printer - ENERGY STAR	ENERGY STAR Office Printer	Standard Office Printer	Per Installation	New	91	5	\$1.00	100%	N/A	\$0.00	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	125	12	\$472	100%	N/A	\$0.57	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	125	12	\$472	100%	N/A	\$0.57	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	128	12	\$472	100%	N/A	\$0.55	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	128	12	\$472	100%	N/A	\$0.55	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	150	12	\$633	100%	N/A	\$0.63	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	150	12	\$633	100%	N/A	\$0.63	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	153	12	\$633	100%	N/A	\$0.62	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	153	12	\$633	100%	N/A	\$0.62	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	100	12	\$37	100%	N/A	\$0.06	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	100	12	\$37	100%	N/A	\$0.06	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	102	12	\$37	100%	N/A	\$0.05	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	102	12	\$37	100%	N/A	\$0.05	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	49	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	49	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	50	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	50	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Removal of Secondary	Proper Disposal of Refrigerator	Existing Non-Efficient Refrigerator	Savings Per Building	Existing	1,140	5	\$30	2.9%	100%	\$0.01	3,858,915
Electric	Multifamily	Refrigerator	Refrigerator - Removal of Secondary	Proper Disposal of Refrigerator	Existing Non-Efficient Refrigerator	Savings Per Building	Existing	1,140	5	\$30	2.9%	100%	\$0.01	4,904,800
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	125	12	\$472	100%	N/A	\$0.57	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	125	12	\$472	100%	N/A	\$0.57	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	128	12	\$472	100%	N/A	\$0.55	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	128	12	\$472	100%	N/A	\$0.55	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	150	12	\$633	100%	N/A	\$0.63	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	150	12	\$633	100%	N/A	\$0.63	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	153	12	\$633	100%	N/A	\$0.62	0.00
Electric	Multifamily	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	153	12	\$633	100%	N/A	\$0.62	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	100	12	\$37	100%	N/A	\$0.06	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	100	12	\$37	100%	N/A	\$0.06	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	102	12	\$37	100%	N/A	\$0.05	0.00
Electric	Multifamily	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	102	12	\$37	100%	N/A	\$0.05	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	49	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	49	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	50	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	50	12	\$22	100%	N/A	\$0.07	0.00
Electric	Multifamily	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	Existing	201	5	\$6	100%	N/A	\$0.01	16,781,435
Electric	Multifamily	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	Existing	201	5	\$6	100%	N/A	\$0.01	18,989,167
Electric	Multifamily	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	New	201	5	\$6	100%	N/A	\$0.01	1,661,556
Electric	Multifamily	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	New	201	5	\$6	100%	N/A	\$0.01	1,991,430
Electric	Multifamily	TV	TV - ENERGY STAR	ENERGY STAR TV	Standard TV	Per Installation	Existing	130	5	\$42	100%	N/A	\$0.09	0.00
Electric	Multifamily	TV	TV - ENERGY STAR	ENERGY STAR TV	Standard TV	Per Installation	New	130	5	\$42	100%	N/A	\$0.09	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	209	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	209	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	214	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	214	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	209	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	209	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	214	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	214	20	\$120	100%	N/A	\$0.06	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	1,797	13	\$1,684	25%	N/A	\$0.15	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	1,797	13	\$1,684	25%	N/A	\$0.15	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	1,903	13	\$1,684	25%	N/A	\$0.14	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	1,903	13	\$1,684	25%	N/A	\$0.14	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	15	13	\$1,003	25%	N/A	\$11.04	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	15	13	\$1,003	25%	N/A	\$11.04	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	40	13	\$1,003	25%	N/A	\$4.12	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	40	13	\$1,003	25%	N/A	\$4.12	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,808	20	\$5,517	20%	N/A	\$0.36	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,890	20	\$5,517	20%	N/A	\$0.35	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	1,797	13	\$1,684	25%	N/A	\$0.15	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	1,797	13	\$1,684	25%	N/A	\$0.15	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	1,903	13	\$1,684	25%	N/A	\$0.14	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	1,903	13	\$1,684	25%	N/A	\$0.14	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	15	13	\$1,003	25%	N/A	\$11.04	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	15	13	\$1,003	25%	N/A	\$11.04	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	40	13	\$1,003	25%	N/A	\$4.12	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	40	13	\$1,003	25%	N/A	\$4.12	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,808	20	\$5,517	20%	N/A	\$0.36	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,890	20	\$5,517	20%	N/A	\$0.35	0.00
Electric	Multifamily	Water Heat GT 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	162	11	\$140	60%	38%	\$0.14	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	162	11	\$140	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	210	11	\$198	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	210	11	\$198	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	242	11	\$198	60%	38%	\$0.13	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	242	11	\$198	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	224	11	\$152	60%	38%	\$0.11	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	224	11	\$152	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	38	11	\$161	33%	77%	\$0.66	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	38	11	\$161	33%	77%	\$0.66	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	44	11	\$161	33%	77%	\$0.58	0.00

Table F.1. Residential Thermostatic Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	44	11	\$161	33%	77%	\$0.58	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	7	11	\$7	33%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	7	11	\$7	33%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	8	11	\$7	33%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	8	11	\$7	33%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	35	11	\$154	59%	77%	\$0.69	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	35	11	\$154	59%	77%	\$0.69	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	354	40	\$935	0.5%	**%	\$0.23	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	370	40	\$935	0.5%	**%	\$0.22	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	59	10	\$3	100%	25%	\$0.01	567,507
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	59	10	\$3	100%	25%	\$0.01	567,507
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	62	10	\$3	100%	25%	\$0.01	651,275
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	62	10	\$3	100%	25%	\$0.01	651,275
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	52	10	\$1	50%	65%	\$0.00	645,539
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	52	10	\$1	50%	65%	\$0.00	645,539
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	54	10	\$1	50%	65%	\$0.00	740,825
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	54	10	\$1	50%	65%	\$0.00	740,825
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	126	10	\$5	50%	95%	\$0.01	2,291,312
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	126	10	\$5	50%	95%	\$0.01	2,291,312
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	132	10	\$5	50%	95%	\$0.01	2,629,523
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	132	10	\$5	50%	95%	\$0.01	2,629,523
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	191	10	\$9	100%	65%	\$0.01	4,753,191
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	191	10	\$9	100%	65%	\$0.01	4,753,191
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	211	10	\$9	100%	65%	\$0.01	5,761,646
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	211	10	\$9	100%	65%	\$0.01	5,761,646
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	191	10	\$29	100%	10%	\$0.03	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	191	10	\$29	100%	10%	\$0.03	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	211	10	\$29	100%	10%	\$0.02	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	211	10	\$29	100%	10%	\$0.02	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	503,457
Electric	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	524,434
Electric	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	503,457

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	524,434
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	162	11	\$140	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	162	11	\$140	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	210	11	\$198	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	210	11	\$198	60%	38%	\$0.15	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	242	11	\$198	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	242	11	\$198	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	224	11	\$152	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	224	11	\$152	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	38	11	\$161	33%	77%	\$0.66	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	38	11	\$161	33%	77%	\$0.66	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	44	11	\$161	33%	77%	\$0.58	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	44	11	\$161	33%	77%	\$0.58	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	7	11	\$7	33%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	7	11	\$7	33%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	8	11	\$7	33%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	8	11	\$7	33%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	35	11	\$154	59%	77%	\$0.69	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	35	11	\$154	59%	77%	\$0.69	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	353	40	\$935	0.5%	**%	\$0.24	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	369	40	\$935	0.5%	**%	\$0.22	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	52	10	\$1	50%	65%	\$0.00	91,243
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	52	10	\$1	50%	65%	\$0.00	91,243
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	54	10	\$1	50%	65%	\$0.00	110,779
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	54	10	\$1	50%	65%	\$0.00	110,779
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	126	10	\$5	50%	95%	\$0.01	323,864
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	126	10	\$5	50%	95%	\$0.01	323,864
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	132	10	\$5	50%	95%	\$0.01	393,205
Electric	Multifamily	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	132	10	\$5	50%	95%	\$0.01	393,205
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	191	10	\$9	100%	65%	\$0.01	671,837
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	191	10	\$9	100%	65%	\$0.01	671,837
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	211	10	\$9	100%	65%	\$0.01	861,567
Electric	Multifamily	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	211	10	\$9	100%	65%	\$0.01	861,567
Electric	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Multifamily	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,519	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,519	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,613	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,613	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,808	20	\$5,517	20%	N/A	\$0.36	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,890	20	\$5,517	20%	N/A	\$0.35	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	91	13	\$72	100%	N/A	\$0.11	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	91	13	\$72	100%	N/A	\$0.11	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	95	13	\$72	100%	N/A	\$0.11	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	95	13	\$72	100%	N/A	\$0.11	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,519	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,519	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,613	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,613	13	\$1,123	25%	N/A	\$0.12	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,808	20	\$5,517	20%	N/A	\$0.36	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,890	20	\$5,517	20%	N/A	\$0.35	0.00
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	91	13	\$72	100%	N/A	\$0.11	-258.112524
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	91	13	\$72	100%	N/A	\$0.11	-258.112524
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	95	13	\$72	100%	N/A	\$0.11	-750.089016
Electric	Multifamily	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	95	13	\$72	100%	N/A	\$0.11	-750.089016
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	162	11	\$140	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	162	11	\$140	60%	38%	\$0.14	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	210	11	\$198	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	210	11	\$198	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	242	11	\$198	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	242	11	\$198	60%	38%	\$0.13	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	224	11	\$152	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	224	11	\$152	60%	38%	\$0.11	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	38	11	\$161	59%	77%	\$0.66	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	38	11	\$161	59%	77%	\$0.66	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	44	11	\$161	59%	77%	\$0.58	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	44	11	\$161	59%	77%	\$0.58	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	7	11	\$7	59%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	7	11	\$7	59%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	8	11	\$7	59%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	8	11	\$7	59%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	35	11	\$154	59%	77%	\$0.69	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	35	11	\$154	59%	77%	\$0.69	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	354	40	\$935	0.5%	***	\$0.23	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	370	40	\$935	0.5%	***	\$0.22	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	59	10	\$3	100%	25%	\$0.01	2,132,447
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	59	10	\$3	100%	25%	\$0.01	2,132,447
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	62	10	\$3	100%	25%	\$0.01	1,474,035
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	62	10	\$3	100%	25%	\$0.01	1,474,035
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	52	10	\$1	50%	65%	\$0.00	2,425,659
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	52	10	\$1	50%	65%	\$0.00	2,425,659
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	54	10	\$1	50%	65%	\$0.00	1,676,715
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	54	10	\$1	50%	65%	\$0.00	1,676,715
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	126	10	\$5	50%	95%	\$0.01	8,609,757
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	126	10	\$5	50%	95%	\$0.01	8,609,757
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	132	10	\$5	50%	95%	\$0.01	5,951,418
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	132	10	\$5	50%	95%	\$0.01	5,951,418
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	191	10	\$9	100%	65%	\$0.01	17,860,432
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	191	10	\$9	100%	65%	\$0.01	17,860,432
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	211	10	\$9	100%	65%	\$0.01	13,040,371
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	211	10	\$9	100%	65%	\$0.01	13,040,371
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	191	10	\$29	100%	10%	\$0.03	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	191	10	\$29	100%	10%	\$0.03	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	211	10	\$29	100%	10%	\$0.02	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	211	10	\$29	100%	10%	\$0.02	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	1,186,956
Electric	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	1,891,774
Electric	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	1,186,956
Electric	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	85%	30%	\$0.01	1,891,774

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	162	11	\$140	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	162	11	\$140	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	186	11	\$140	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	58	11	\$58	60%	38%	\$0.16	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	66	11	\$58	60%	38%	\$0.14	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	282	11	\$210	60%	38%	\$0.12	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	325	11	\$210	60%	38%	\$0.10	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	210	11	\$198	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	210	11	\$198	60%	38%	\$0.15	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	242	11	\$198	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	242	11	\$198	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	106	11	\$116	60%	38%	\$0.17	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	122	11	\$116	60%	38%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	331	11	\$268	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	380	11	\$268	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	224	11	\$152	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	224	11	\$152	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	258	11	\$152	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	120	11	\$70	60%	38%	\$0.09	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	138	11	\$70	60%	38%	\$0.08	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	104	11	\$81	60%	38%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	119	11	\$81	60%	38%	\$0.11	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	38	11	\$161	59%	77%	\$0.66	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	38	11	\$161	59%	77%	\$0.66	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	44	11	\$161	59%	77%	\$0.58	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	44	11	\$161	59%	77%	\$0.58	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	7	11	\$7	59%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	7	11	\$7	59%	77%	\$0.15	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	8	11	\$7	59%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	8	11	\$7	59%	77%	\$0.13	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	67	11	\$309	59%	77%	\$0.73	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	77	11	\$309	59%	77%	\$0.63	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	36	11	\$155	59%	77%	\$0.67	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	42	11	\$155	59%	77%	\$0.59	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	30	11	\$154	59%	77%	\$0.79	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	35	11	\$154	59%	77%	\$0.69	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Multifamily	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	35	11	\$154	59%	77%	\$0.69	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	339	40	\$935	0.5%	***	\$0.24	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	355	40	\$935	0.5%	***	\$0.23	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	52	10	\$1	50%	65%	\$0.00	337,048
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	52	10	\$1	50%	65%	\$0.00	337,048
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	54	10	\$1	50%	65%	\$0.00	246,796
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	54	10	\$1	50%	65%	\$0.00	246,796
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	126	10	\$5	50%	95%	\$0.01	1,196,338
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	126	10	\$5	50%	95%	\$0.01	1,196,338
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	132	10	\$5	50%	95%	\$0.01	875,992
Electric	Multifamily	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	132	10	\$5	50%	95%	\$0.01	875,992
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	191	10	\$9	100%	65%	\$0.01	2,481,732
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	191	10	\$9	100%	65%	\$0.01	2,481,732
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	211	10	\$9	100%	65%	\$0.01	1,919,418
Electric	Multifamily	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	211	10	\$9	100%	65%	\$0.01	1,919,418
Electric	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Multifamily	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Single Family	Computer	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Installation	Existing	76	4	\$17	100%	N/A	\$0.08	0.00
Electric	Single Family	Computer	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Installation	New	76	4	\$17	100%	N/A	\$0.08	0.00
Electric	Single Family	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	Existing	2	19	\$66	100%	N/A	\$2.83	0.00
Electric	Single Family	Cooking Oven	Cooking Oven - High Efficiency	High Efficiency Convection Cooking Oven	Federal Standard 2012 Cooking Oven	Per Installation	New	2	19	\$66	100%	N/A	\$2.83	0.00
Electric	Single Family	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	265	18	\$1,585	13%	95%	\$0.71	0.00
Electric	Single Family	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	323	18	\$1,585	13%	95%	\$0.58	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	143	40	\$1,422	85%	64%	\$0.88	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	143	40	\$1,422	85%	64%	\$0.88	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	156	40	\$1,882	85%	64%	\$1.07	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	156	40	\$1,882	85%	64%	\$1.07	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	457	15	\$1,625	100%	N/A	\$0.46	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/ EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	559	15	\$1,625	100%	N/A	\$0.38	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	252	15	\$812	100%	N/A	\$0.42	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	252	15	\$812	100%	N/A	\$0.42	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	308	15	\$812	100%	N/A	\$0.34	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/ EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	308	15	\$812	100%	N/A	\$0.34	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	678	15	\$2,708	100%	N/A	\$0.52	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	678	15	\$2,708	100%	N/A	\$0.52	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	828	15	\$2,708	100%	N/A	\$0.43	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/ EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	828	15	\$2,708	100%	N/A	\$0.43	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	174	15	\$541	100%	N/A	\$0.41	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/ EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	212	15	\$541	100%	N/A	\$0.33	0.00
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/ EER 13/11 (Split System)	Per Installation	Existing	2,044	15	\$-2001.4473	0.3%	N/A	\$-0.13	3,121,512

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	Existing	2,044	15	\$-2001.4473	0.3%	N/A	\$-0.13	3,121,512
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	Existing	2,583	15	\$-2001.4473	0.3%	N/A	\$-0.10	4,831,504
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	Existing	2,583	15	\$-2001.4473	0.3%	N/A	\$-0.10	4,831,504
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	51	20	\$125	75%	99%	\$0.28	0.00
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	51	20	\$125	75%	99%	\$0.28	0.00
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	55	20	\$164	75%	99%	\$0.33	0.00
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	55	20	\$164	75%	99%	\$0.33	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	37	40	\$194	100%	64%	\$0.46	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	37	40	\$194	100%	64%	\$0.46	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	46	40	\$194	100%	64%	\$0.37	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	46	40	\$194	100%	64%	\$0.37	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	22	40	\$52	100%	64%	\$0.21	15,780,334
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	27	40	\$52	100%	64%	\$0.17	23,283,696
Electric	Single Family	Cool Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	492	18	\$1,162	25%	64%	\$0.28	0.00
Electric	Single Family	Cool Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	601	18	\$1,162	25%	64%	\$0.23	0.00
Electric	Single Family	Cool Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	34	11	\$418	75%	62%	\$1.96	0.00
Electric	Single Family	Cool Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	41	11	\$320	75%	62%	\$1.23	0.00
Electric	Single Family	Cool Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	92	11	\$33	100%	72%	\$0.06	75,445,411
Electric	Single Family	Cool Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	113	11	\$33	100%	72%	\$0.05	11,318,807
Electric	Single Family	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	Existing	278	18	\$262	95%	65%	\$0.11	43,298,546
Electric	Single Family	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	Existing	339	18	\$262	95%	65%	\$0.09	11,435,302
Electric	Single Family	Cool Central	Tune-up - Central Air Conditioner	Central Air Conditioner with Tune-up	Central Air Conditioner with no Tune-up	Savings Per Building	Existing	198	5	\$300	95%	75%	\$0.44	0.00
Electric	Single Family	Cool Central	Tune-up - Central Air Conditioner	Central Air Conditioner with Tune-up	Central Air Conditioner with no Tune-up	Savings Per Building	Existing	242	5	\$300	95%	75%	\$0.36	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	79	40	\$370	0.0%	95%	\$0.42	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	79	40	\$370	0.0%	95%	\$0.42	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	86	40	\$332	0.0%	95%	\$0.34	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	86	40	\$332	0.0%	95%	\$0.34	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	433	40	\$2,096	75%	64%	\$0.43	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	433	40	\$2,096	75%	64%	\$0.43	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	475	40	\$1,881	75%	64%	\$0.35	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	475	40	\$1,881	75%	64%	\$0.35	0.00
Electric	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	397	20	\$455	50%	95%	\$0.13	14,733,087
Electric	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	485	20	\$455	50%	95%	\$0.11	16,836,117
Electric	Single Family	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	92	11	\$172	95%	100%	\$0.30	0.00
Electric	Single Family	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	113	11	\$172	95%	100%	\$0.24	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	178	25	\$7,807	95%	44%	\$4.45	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	178	25	\$7,807	95%	44%	\$4.45	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	191	25	\$10,205	95%	44%	\$5.43	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	191	25	\$10,205	95%	44%	\$5.43	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	217	25	\$13,602	95%	99%	\$6.37	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	217	25	\$13,602	95%	99%	\$6.37	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	232	25	\$17,780	95%	99%	\$7.78	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	232	25	\$17,780	95%	99%	\$7.78	0.00
Electric	Single Family	Cool Central	Window Film	Window Film	No Film	Savings Per Building	Existing	198	10	\$1,515	50%	90%	\$1.30	0.00
Electric	Single Family	Cool Central	Window Film	Window Film	No Film	Savings Per Building	Existing	242	10	\$1,159	50%	90%	\$0.81	0.00
Electric	Single Family	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	143	18	\$1,585	45%	95%	\$1.31	0.00
Electric	Single Family	Cool Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	175	18	\$1,585	45%	95%	\$1.07	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	14	40	\$289	95%	64%	\$1.83	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	14	40	\$289	95%	64%	\$1.83	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	15	40	\$383	95%	64%	\$2.23	0.00
Electric	Single Family	Cool Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	15	40	\$383	95%	64%	\$2.23	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	273	15	\$1,625	100%	N/A	\$0.78	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - CEE Tier 3	CEE Tier 3 Central Air Conditioner - SEER/EER 16/13 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	333	15	\$1,625	100%	N/A	\$0.64	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	150	15	\$812	100%	N/A	\$0.70	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - ENERGY STAR	ENERGY STAR Central Air Conditioner - SEER/EER 14.5/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	184	15	\$812	100%	N/A	\$0.58	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	405	15	\$2,708	100%	N/A	\$0.87	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Enhanced	Enhanced Central Air Conditioner - SEER/EER 18/14 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	494	15	\$2,708	100%	N/A	\$0.72	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	104	15	\$541	100%	N/A	\$0.68	0.00
Electric	Single Family	Cool Central	Central Air Conditioner - Federal Standard 2015	Federal Standard 2015 Central Air Conditioner - SEER/EER 14/12 (Split System)	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	127	15	\$541	100%	N/A	\$0.56	0.00
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	1,060	15	\$-2001.4473	0.3%	N/A	\$-0.25	387,217
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	1,060	15	\$-2001.4473	0.3%	N/A	\$-0.25	387,217
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	1,382	15	\$-2001.4473	0.3%	N/A	\$-0.19	647,480
Electric	Single Family	Cool Central	Central Cooling - Evaporative Cooler	Evaporative Cooler	Federal Standard 2006 Central Air Conditioner - SEER/EER 13/11 (Split System)	Per Installation	New	1,382	15	\$-2001.4473	0.3%	N/A	\$-0.19	647,480
Electric	Single Family	Cool Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	186	40	\$4,681	25%	**%	\$2.23	0.00
Electric	Single Family	Cool Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	227	40	\$3,581	25%	**%	\$1.40	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	27	20	\$125	75%	99%	\$0.51	0.00
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	27	20	\$125	75%	99%	\$0.51	0.00
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	30	20	\$164	75%	99%	\$0.61	0.00
Electric	Single Family	Cool Central	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	30	20	\$164	75%	99%	\$0.61	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	27	40	\$194	100%	64%	\$0.64	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	27	40	\$194	100%	64%	\$0.64	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	32	40	\$194	100%	64%	\$0.52	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	32	40	\$194	100%	64%	\$0.52	0.00
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	15	40	\$52	100%	64%	\$0.29	1,427,346
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	15	40	\$52	100%	64%	\$0.29	1,427,346
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	19	40	\$52	100%	64%	\$0.24	2,242,536
Electric	Single Family	Cool Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	19	40	\$52	100%	64%	\$0.24	2,242,536
Electric	Single Family	Cool Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	71	40	\$24,917	10%	0%	\$30.84	0.00
Electric	Single Family	Cool Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	87	40	\$18,975	10%	0%	\$19.24	0.00
Electric	Single Family	Cool Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	44	20	\$1,082	85%	95%	\$2.73	0.00
Electric	Single Family	Cool Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	54	20	\$827	85%	95%	\$1.71	0.00
Electric	Single Family	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	New	150	18	\$262	95%	65%	\$0.21	0.00
Electric	Single Family	Cool Central	Quality Installation - Central Air Conditioner	Quality Installation of Central Air Conditioner - Commissioning, Controls, and Proper Sizing	Standard Installation of Central Air Conditioner	Savings Per Building	New	183	18	\$262	95%	65%	\$0.17	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	54	40	\$355	75%	90%	\$0.58	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	54	40	\$355	75%	90%	\$0.58	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	59	40	\$321	75%	90%	\$0.48	0.00
Electric	Single Family	Cool Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	59	40	\$321	75%	90%	\$0.48	0.00
Electric	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	215	20	\$455	50%	95%	\$0.24	0.00
Electric	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	262	20	\$455	50%	95%	\$0.19	0.00
Electric	Single Family	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	50	11	\$172	95%	100%	\$0.55	0.00
Electric	Single Family	Cool Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	61	11	\$172	95%	100%	\$0.45	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	33	25	\$2,368	95%	44%	\$7.16	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	33	25	\$2,368	95%	44%	\$7.16	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	36	25	\$3,095	95%	44%	\$8.74	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	36	25	\$3,095	95%	44%	\$8.74	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	67	25	\$9,405	95%	99%	\$14.22	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	67	25	\$9,405	95%	99%	\$14.22	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	72	25	\$12,293	95%	99%	\$17.35	0.00
Electric	Single Family	Cool Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	72	25	\$12,293	95%	99%	\$17.35	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	39	40	\$1,422	85%	64%	\$3.16	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	39	40	\$1,422	85%	64%	\$3.16	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	43	40	\$1,882	85%	64%	\$3.85	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	43	40	\$1,882	85%	64%	\$3.85	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$125	75%	99%	\$2.32	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$125	75%	99%	\$2.32	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$164	75%	99%	\$2.79	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	6	20	\$164	75%	99%	\$2.79	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	10	40	\$194	100%	64%	\$1.64	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	10	40	\$194	100%	64%	\$1.64	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	12	40	\$194	100%	64%	\$1.35	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	12	40	\$194	100%	64%	\$1.35	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	6	40	\$52	100%	64%	\$0.74	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	6	40	\$52	100%	64%	\$0.74	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	7	40	\$52	100%	64%	\$0.61	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	7	40	\$52	100%	64%	\$0.61	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	69	15	\$10,807	50%	N/A	\$17.80	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	69	15	\$10,807	50%	N/A	\$17.80	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	85	15	\$8,267	50%	N/A	\$11.16	0.00

Table F.1. Residential Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	85	15	\$8,267	50%	N/A	\$11.16	0.00
Electric	Single Family	Cool Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	4	11	\$418	75%	62%	\$16.49	0.00
Electric	Single Family	Cool Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	4	11	\$320	75%	62%	\$10.33	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	Existing	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	21	40	\$370	0.0%	95%	\$1.50	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	21	40	\$370	0.0%	95%	\$1.50	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	24	40	\$332	0.0%	95%	\$1.23	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	24	40	\$332	0.0%	95%	\$1.23	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	120	40	\$2,096	75%	64%	\$1.55	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	120	40	\$2,096	75%	64%	\$1.55	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	131	40	\$1,881	75%	64%	\$1.27	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	131	40	\$1,881	75%	64%	\$1.27	0.00
Electric	Single Family	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	11	11	\$172	95%	100%	\$2.49	0.00
Electric	Single Family	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	13	11	\$172	95%	100%	\$2.04	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	49	25	\$7,807	95%	44%	\$16.02	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	49	25	\$7,807	95%	44%	\$16.02	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	53	25	\$10,205	95%	44%	\$19.56	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	53	25	\$10,205	95%	44%	\$19.56	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	10	25	\$1,950	95%	44%	\$18.41	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	10	25	\$1,950	95%	44%	\$18.41	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	11	25	\$2,549	95%	44%	\$22.47	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	11	25	\$2,549	95%	44%	\$22.47	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	60	25	\$13,602	95%	99%	\$22.93	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	60	25	\$13,602	95%	99%	\$22.93	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	64	25	\$17,780	95%	99%	\$27.99	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	64	25	\$17,780	95%	99%	\$27.99	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	21	25	\$7,745	95%	99%	\$36.56	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	21	25	\$7,745	95%	99%	\$36.56	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	23	25	\$10,124	95%	99%	\$44.63	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	23	25	\$10,124	95%	99%	\$44.63	0.00
Electric	Single Family	Cool Room	Window Film	Window Film	No Film	Savings Per Building	Existing	23	10	\$1,515	50%	90%	\$10.92	0.00
Electric	Single Family	Cool Room	Window Film	Window Film	No Film	Savings Per Building	Existing	28	10	\$1,159	50%	90%	\$6.84	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	5	40	\$289	95%	64%	\$5.12	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	5	40	\$289	95%	64%	\$5.12	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	5	40	\$383	95%	64%	\$6.25	0.00
Electric	Single Family	Cool Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	5	40	\$383	95%	64%	\$6.25	0.00
Electric	Single Family	Cool Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	40	40	\$4,681	25%	***	\$10.17	0.00
Electric	Single Family	Cool Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	49	40	\$3,581	25%	***	\$6.37	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$125	75%	99%	\$2.32	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$125	75%	99%	\$2.32	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$164	75%	99%	\$2.79	0.00
Electric	Single Family	Cool Room	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	6	20	\$164	75%	99%	\$2.79	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	9	40	\$194	100%	64%	\$1.79	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	9	40	\$194	100%	64%	\$1.79	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	11	40	\$194	100%	64%	\$1.47	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	11	40	\$194	100%	64%	\$1.47	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	5	40	\$52	100%	64%	\$0.81	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	5	40	\$52	100%	64%	\$0.81	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	6	40	\$52	100%	64%	\$0.66	0.00
Electric	Single Family	Cool Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	6	40	\$52	100%	64%	\$0.66	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	69	15	\$10,807	95%	N/A	\$20.21	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	69	15	\$10,807	95%	N/A	\$20.21	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	85	15	\$8,267	95%	N/A	\$12.67	0.00
Electric	Single Family	Cool Room	Ductless Air Conditioner (DAC)	Ductless Air Conditioner - SEER/EER 18/12.5	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	85	15	\$8,267	95%	N/A	\$12.67	0.00
Electric	Single Family	Cool Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	15	40	\$24,917	10%	***%	\$140.69	0.00
Electric	Single Family	Cool Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	19	40	\$18,975	10%	***%	\$87.77	0.00
Electric	Single Family	Cool Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	9	20	\$1,082	85%	95%	\$12.48	0.00
Electric	Single Family	Cool Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	11	20	\$827	85%	95%	\$7.82	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	29	9	\$41	100%	N/A	\$0.25	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Single Family	Cool Room	Room AC - ENERGY STAR	ENERGY STAR Room AC - CEER/EER 10.7/10.8 (8,000-13,999 Btuh)	Federal Standard 2001 Room AC - CEER/EER 9.7/9.8 (8,000-13,999 Btuh)	Per Installation	New	36	9	\$41	100%	N/A	\$0.21	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	19	40	\$355	75%	90%	\$1.63	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	19	40	\$355	75%	90%	\$1.63	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	21	40	\$321	75%	90%	\$1.33	0.00
Electric	Single Family	Cool Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	21	40	\$321	75%	90%	\$1.33	0.00
Electric	Single Family	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	11	11	\$172	95%	100%	\$2.49	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Cool Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	13	11	\$172	95%	100%	\$2.04	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	12	25	\$2,368	95%	44%	\$20.05	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	12	25	\$2,368	95%	44%	\$20.05	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	12	25	\$3,095	95%	44%	\$24.47	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	12	25	\$3,095	95%	44%	\$24.47	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	24	25	\$9,405	95%	99%	\$39.81	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	24	25	\$9,405	95%	99%	\$39.81	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	25	25	\$12,293	95%	99%	\$48.59	0.00
Electric	Single Family	Cool Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	25	25	\$12,293	95%	99%	\$48.59	0.00
Electric	Single Family	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	Existing	125	6	\$1.00	100%	N/A	\$0.00	491,394
Electric	Single Family	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	Existing	125	6	\$1.00	100%	N/A	\$0.00	530,973
Electric	Single Family	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	New	125	6	\$1.00	100%	N/A	\$0.00	107,192
Electric	Single Family	Copier	Office Copier - ENERGY STAR	ENERGY STAR Office Copier	Standard Office Copier	Per Installation	New	125	6	\$1.00	100%	N/A	\$0.00	109,353
Electric	Single Family	DVD	DVD Player - ENERGY STAR	ENERGY STAR DVD Player	Standard DVD Player	Per Installation	Existing	18	3	\$8	100%	N/A	\$0.21	0.00
Electric	Single Family	DVD	DVD Player - ENERGY STAR	ENERGY STAR DVD Player	Standard DVD Player	Per Installation	New	18	3	\$8	100%	N/A	\$0.21	0.00
Electric	Single Family	Dehumidifier	Dehumidifier - High Efficiency	High Efficiency Dehumidifier	Federal Standard 2013 Dehumidifier	Per Installation	Existing	77	12	\$44	100%	N/A	\$0.09	0.00
Electric	Single Family	Dehumidifier	Dehumidifier - High Efficiency	High Efficiency Dehumidifier	Federal Standard 2013 Dehumidifier	Per Installation	New	77	12	\$44	100%	N/A	\$0.09	0.00
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	160	11	\$296	100%	N/A	\$0.29	0.00
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	160	11	\$296	100%	N/A	\$0.29	0.00
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	168	11	\$296	100%	N/A	\$0.28	0.00
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	168	11	\$296	100%	N/A	\$0.28	0.00
Electric	Single Family	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	147	11	\$267	100%	N/A	\$0.29	0.00
Electric	Single Family	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	Existing	155	11	\$267	100%	N/A	\$0.27	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	160	11	\$296	100%	N/A	\$0.29	47
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	160	11	\$296	100%	N/A	\$0.29	47
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	168	11	\$296	100%	N/A	\$0.28	4
Electric	Single Family	Dryer	Dryer - Enhanced Efficiency	Enhanced Efficiency Steam Dryer with Controls - CEF/EF 3.79/3.9	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	168	11	\$296	100%	N/A	\$0.28	4
Electric	Single Family	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	147	11	\$267	100%	N/A	\$0.29	-984.877164
Electric	Single Family	Dryer	Dryer - Federal Standard 2015	Federal Standard 2015 Dryer - CEF/EF 3.73/3.83	Standard Dryer with Controls and Moisture Sensor - CEF/EF 3.14/3.19	Per Installation	New	155	11	\$267	100%	N/A	\$0.27	-823.279692
Electric	Single Family	Freezer	Freezer - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Installation	Existing	46	12	\$6	100%	N/A	\$0.02	0.00
Electric	Single Family	Freezer	Freezer - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Installation	Existing	128	12	\$3	100%	N/A	\$0.00	0.00
Electric	Single Family	Freezer	Freezer - Removal of Stand-Alone	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Savings Per Building	Existing	916	5	\$30	53%	100%	\$0.01	31,903,370
Electric	Single Family	Freezer	Freezer - Removal of Stand-Alone	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Savings Per Building	Existing	916	5	\$30	53%	100%	\$0.01	99,903,852
Electric	Single Family	Freezer	Freezer - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Installation	New	46	12	\$6	100%	N/A	\$0.02	0.00
Electric	Single Family	Freezer	Freezer - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Installation	New	128	12	\$3	100%	N/A	\$0.00	0.00
Electric	Single Family	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	1,150	18	\$1,585	13%	95%	\$0.16	0.00
Electric	Single Family	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	1,234	18	\$1,585	13%	95%	\$0.15	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,332	40	\$1,422	85%	64%	\$0.09	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,332	40	\$1,422	85%	64%	\$0.09	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,891	40	\$1,882	85%	64%	\$0.09	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,891	40	\$1,882	85%	64%	\$0.09	0.00
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	426	40	\$194	100%	64%	\$0.04	19,535,389
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	426	40	\$194	100%	64%	\$0.04	19,535,389
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	458	40	\$194	100%	64%	\$0.04	49,082,749
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	458	40	\$194	100%	64%	\$0.04	49,082,749
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	252	40	\$52	100%	64%	\$0.02	16,916,061
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	252	40	\$52	100%	64%	\$0.02	16,916,061
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	271	40	\$52	100%	64%	\$0.02	43,937,044
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	271	40	\$52	100%	64%	\$0.02	43,937,044

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,782	18	\$1,162	25%	64%	\$0.08	0.00
Electric	Single Family	Heat Central	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,913	18	\$1,162	25%	64%	\$0.07	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,808	40	\$1,014	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,808	40	\$1,014	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	2,568	40	\$1,342	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	2,568	40	\$1,342	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	249	11	\$320	75%	62%	\$0.20	0.00
Electric	Single Family	Heat Central	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	268	11	\$418	75%	62%	\$0.25	0.00
Electric	Single Family	Heat Central	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	418	40	\$132	35%	64%	\$0.03	9,401,070
Electric	Single Family	Heat Central	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	418	40	\$132	35%	64%	\$0.03	9,401,070
Electric	Single Family	Heat Central	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	481	40	\$151	35%	64%	\$0.03	26,172,250
Electric	Single Family	Heat Central	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	481	40	\$151	35%	64%	\$0.03	26,172,250
Electric	Single Family	Heat Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	335	11	\$33	100%	72%	\$0.02	24,829,269
Electric	Single Family	Heat Central	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	359	11	\$33	100%	72%	\$0.01	64,490,468
Electric	Single Family	Heat Central	Tune-up - Furnace (Electric)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	1,006	18	\$262	95%	75%	\$0.03	54,085,526
Electric	Single Family	Heat Central	Tune-up - Furnace (Electric)	Furnace with Tune-up	Furnace with no Tune-up	Savings Per Building	Existing	1,079	18	\$262	95%	75%	\$0.03	40,479,402
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	802	40	\$332	0.0%	95%	\$0.04	0.00
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	802	40	\$332	0.0%	95%	\$0.04	0.00
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	959	40	\$370	0.0%	95%	\$0.03	0.00
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	959	40	\$370	0.0%	95%	\$0.03	0.00
Electric	Single Family	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	4,394	40	\$1,881	75%	64%	\$0.04	93,016,025
Electric	Single Family	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	4,394	40	\$1,881	75%	64%	\$0.04	93,016,025
Electric	Single Family	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	5,253	40	\$2,096	75%	64%	\$0.04	58,051,825
Electric	Single Family	Heat Central	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	5,253	40	\$2,096	75%	64%	\$0.04	58,051,825
Electric	Single Family	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	335	11	\$172	95%	100%	\$0.08	0.00
Electric	Single Family	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	359	11	\$172	95%	100%	\$0.08	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,653	25	\$7,807	95%	44%	\$0.48	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,653	25	\$7,807	95%	44%	\$0.48	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	2,318	25	\$10,205	95%	44%	\$0.45	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	2,318	25	\$10,205	95%	44%	\$0.45	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	359	25	\$1,950	95%	44%	\$0.55	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	359	25	\$1,950	95%	44%	\$0.55	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	504	25	\$2,549	95%	44%	\$0.52	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	504	25	\$2,549	95%	44%	\$0.52	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	2,012	25	\$13,602	95%	99%	\$0.69	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	2,012	25	\$13,602	95%	99%	\$0.69	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	2,823	25	\$17,780	95%	99%	\$0.64	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	2,823	25	\$17,780	95%	99%	\$0.64	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	718	25	\$7,745	95%	99%	\$1.10	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	718	25	\$7,745	95%	99%	\$1.10	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	1,008	25	\$10,124	95%	99%	\$1.02	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	1,008	25	\$10,124	95%	99%	\$1.02	0.00
Electric	Single Family	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	993	18	\$1,585	45%	95%	\$0.19	0.00
Electric	Single Family	Heat Central	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	1,066	18	\$1,585	45%	95%	\$0.18	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	181	40	\$289	95%	64%	\$0.14	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	181	40	\$289	95%	64%	\$0.14	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	258	40	\$383	95%	64%	\$0.13	0.00
Electric	Single Family	Heat Central	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	258	40	\$383	95%	64%	\$0.13	0.00
Electric	Single Family	Heat Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	1,076	40	\$3,581	25%	***	\$0.30	0.00
Electric	Single Family	Heat Central	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	1,155	40	\$4,681	25%	***	\$0.36	0.00
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	426	40	\$194	100%	64%	\$0.04	3,215,547
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	426	40	\$194	100%	64%	\$0.04	3,215,547
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	458	40	\$194	100%	64%	\$0.04	7,832,439
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	458	40	\$194	100%	64%	\$0.04	7,832,439
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	252	40	\$52	100%	64%	\$0.02	2,070,497
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	252	40	\$52	100%	64%	\$0.02	2,070,497
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	271	40	\$52	100%	64%	\$0.02	5,079,952
Electric	Single Family	Heat Central	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	271	40	\$52	100%	64%	\$0.02	5,079,952

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	106	40	\$280	75%	64%	\$0.23	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	106	40	\$280	75%	64%	\$0.23	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	151	40	\$371	75%	64%	\$0.22	0.00
Electric	Single Family	Heat Central	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	151	40	\$371	75%	64%	\$0.22	0.00
Electric	Single Family	Heat Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	414	40	\$18,975	10%	***	\$4.07	0.00
Electric	Single Family	Heat Central	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	444	40	\$24,917	10%	***	\$4.98	0.00
Electric	Single Family	Heat Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	731	20	\$827	85%	95%	\$0.13	0.00
Electric	Single Family	Heat Central	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	784	20	\$1,082	85%	95%	\$0.15	0.00
Electric	Single Family	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	858	40	\$474	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	858	40	\$474	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	1,135	40	\$628	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Central	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	1,135	40	\$628	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	774	40	\$321	75%	90%	\$0.04	6,603,926
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	774	40	\$321	75%	90%	\$0.04	6,603,926
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	920	40	\$355	75%	90%	\$0.03	17,936,704
Electric	Single Family	Heat Central	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	920	40	\$355	75%	90%	\$0.03	17,936,704
Electric	Single Family	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	289	11	\$172	95%	100%	\$0.09	0.00
Electric	Single Family	Heat Central	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	311	11	\$172	95%	100%	\$0.09	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	436	25	\$2,368	95%	44%	\$0.55	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	436	25	\$2,368	95%	44%	\$0.55	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	612	25	\$3,095	95%	44%	\$0.52	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	612	25	\$3,095	95%	44%	\$0.52	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	872	25	\$9,405	95%	99%	\$1.10	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	872	25	\$9,405	95%	99%	\$1.10	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	1,224	25	\$12,293	95%	99%	\$1.02	0.00
Electric	Single Family	Heat Central	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	1,224	25	\$12,293	95%	99%	\$1.02	0.00
Electric	Single Family	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	1,197	18	\$1,585	13%	95%	\$0.16	0.00
Electric	Single Family	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	Existing	1,202	18	\$1,585	13%	95%	\$0.16	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	775	40	\$1,422	85%	64%	\$0.16	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	775	40	\$1,422	85%	64%	\$0.16	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,052	40	\$1,882	85%	64%	\$0.16	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	1,052	40	\$1,882	85%	64%	\$0.16	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	15	20	\$125	75%	99%	\$0.89	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	15	20	\$125	75%	99%	\$0.89	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	62	20	\$164	75%	99%	\$0.30	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	Existing	62	20	\$164	75%	99%	\$0.30	0.00
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	248	40	\$194	100%	64%	\$0.07	23,994,776
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	248	40	\$194	100%	64%	\$0.07	23,994,776
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	254	40	\$194	100%	64%	\$0.07	66,473,947
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	254	40	\$194	100%	64%	\$0.07	66,473,947
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	147	40	\$52	100%	64%	\$0.03	17,543,463
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	147	40	\$52	100%	64%	\$0.03	17,543,463
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	150	40	\$52	100%	64%	\$0.03	49,626,704
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	150	40	\$52	100%	64%	\$0.03	49,626,704
Electric	Single Family	Heat Pump	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,954	18	\$1,162	25%	64%	\$0.07	25,426,106
Electric	Single Family	Heat Pump	Duct Sealing and Insulation - Code	Code Duct Sealing and Insulation - R-8	Existing Duct Sealing and Insulation - R-4	Savings Per Building	Existing	1,961	18	\$1,162	25%	64%	\$0.07	46,650,428
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	857	40	\$1,014	25%	64%	\$0.11	19,776,943
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	857	40	\$1,014	25%	64%	\$0.11	19,776,943
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,217	40	\$1,342	25%	64%	\$0.10	75,790,269
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,217	40	\$1,342	25%	64%	\$0.10	75,790,269
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,060	15	\$1,415	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,060	15	\$1,415	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,082	15	\$1,415	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,082	15	\$1,415	100%	N/A	\$0.17	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	728	15	\$1,061	100%	N/A	\$0.19	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	728	15	\$1,061	100%	N/A	\$0.19	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	752	15	\$1,061	100%	N/A	\$0.18	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	752	15	\$1,061	100%	N/A	\$0.18	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,157	15	\$3,538	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,157	15	\$3,538	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,206	15	\$3,538	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	2,206	15	\$3,538	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	650	15	\$707	100%	N/A	\$0.14	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	650	15	\$707	100%	N/A	\$0.14	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	656	15	\$707	100%	N/A	\$0.14	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	656	15	\$707	100%	N/A	\$0.14	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,585	15	\$2,123	100%	N/A	\$0.18	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,585	15	\$2,123	100%	N/A	\$0.18	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,609	15	\$2,123	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	1,609	15	\$2,123	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	3,779	15	\$9,018	25%	N/A	\$0.31	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	3,779	15	\$9,018	25%	N/A	\$0.31	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	3,786	15	\$9,018	25%	N/A	\$0.31	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	Existing	3,786	15	\$9,018	25%	N/A	\$0.31	0.00
Electric	Single Family	Heat Pump	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	202	11	\$418	75%	62%	\$0.33	0.00
Electric	Single Family	Heat Pump	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	203	11	\$320	75%	62%	\$0.25	0.00
Electric	Single Family	Heat Pump	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	198	40	\$132	35%	64%	\$0.06	7,609,030
Electric	Single Family	Heat Pump	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	198	40	\$132	35%	64%	\$0.06	7,609,030
Electric	Single Family	Heat Pump	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	228	40	\$151	35%	64%	\$0.06	24,113,163
Electric	Single Family	Heat Pump	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	228	40	\$151	35%	64%	\$0.06	24,113,163
Electric	Single Family	Heat Pump	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	367	11	\$33	100%	72%	\$0.01	39,519,521
Electric	Single Family	Heat Pump	Programmable Thermostat	Programmable Thermostat	Manual Thermostat	Savings Per Building	Existing	369	11	\$33	100%	72%	\$0.01	50,797,168
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	1,204	15	\$412	95%	65%	\$0.04	4,955,689
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	1,204	15	\$412	95%	65%	\$0.04	4,955,689

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	1,207	15	\$412	95%	65%	\$0.04	89,990,519
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	Existing	1,207	15	\$412	95%	65%	\$0.04	89,990,519
Electric	Single Family	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	371	5	\$300	20%	75%	\$0.24	0.00
Electric	Single Family	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	371	5	\$300	20%	75%	\$0.24	0.00
Electric	Single Family	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	402	5	\$300	20%	75%	\$0.22	0.00
Electric	Single Family	Heat Pump	Tune-up - Heat Pump	Heat Pump with Tune-up	Heat Pump with no Tune-up	Savings Per Building	Existing	402	5	\$300	20%	75%	\$0.22	0.00
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	467	40	\$332	0.0%	95%	\$0.06	0.00
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	467	40	\$332	0.0%	95%	\$0.06	0.00
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	533	40	\$370	0.0%	95%	\$0.06	0.00
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	533	40	\$370	0.0%	95%	\$0.06	0.00
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	2,557	40	\$1,881	75%	64%	\$0.07	9,435,959
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	2,557	40	\$1,881	75%	64%	\$0.07	9,435,959
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	2,923	40	\$2,096	75%	64%	\$0.06	59,054,970
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	2,923	40	\$2,096	75%	64%	\$0.06	59,054,970
Electric	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	315	20	\$455	50%	95%	\$0.16	0.00
Electric	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	Existing	316	20	\$455	50%	95%	\$0.16	0.00
Electric	Single Family	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	367	11	\$172	95%	100%	\$0.07	0.00
Electric	Single Family	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	369	11	\$172	95%	100%	\$0.07	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	962	25	\$7,807	95%	44%	\$0.83	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	962	25	\$7,807	95%	44%	\$0.83	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,290	25	\$10,205	95%	44%	\$0.81	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,290	25	\$10,205	95%	44%	\$0.81	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	209	25	\$1,950	95%	44%	\$0.95	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	209	25	\$1,950	95%	44%	\$0.95	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	280	25	\$2,549	95%	44%	\$0.93	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	280	25	\$2,549	95%	44%	\$0.93	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,171	25	\$13,602	95%	99%	\$1.18	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,171	25	\$13,602	95%	99%	\$1.18	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,570	25	\$17,780	95%	99%	\$1.15	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	1,570	25	\$17,780	95%	99%	\$1.15	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	418	25	\$7,745	95%	99%	\$1.89	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	418	25	\$7,745	95%	99%	\$1.89	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	560	25	\$10,124	95%	99%	\$1.84	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	560	25	\$10,124	95%	99%	\$1.84	0.00
Electric	Single Family	Heat Pump	Window Film	Window Film	No Film	Savings Per Building	Existing	788	10	\$1,515	50%	90%	\$0.33	0.00
Electric	Single Family	Heat Pump	Window Film	Window Film	No Film	Savings Per Building	Existing	791	10	\$1,159	50%	90%	\$0.25	0.00
Electric	Single Family	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	974	18	\$1,585	45%	95%	\$0.19	0.00
Electric	Single Family	Heat Pump	Air-to-Air Heat Exchanger	Air-to-Air Heat Exchanger	No Air to Air Heat Exchanger	Savings Per Building	New	995	18	\$1,585	45%	95%	\$0.19	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	89	40	\$289	95%	64%	\$0.29	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	89	40	\$289	95%	64%	\$0.29	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	122	40	\$383	95%	64%	\$0.28	0.00
Electric	Single Family	Heat Pump	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	122	40	\$383	95%	64%	\$0.28	0.00
Electric	Single Family	Heat Pump	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	1,111	40	\$3,581	25%	***	\$0.29	0.00
Electric	Single Family	Heat Pump	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	1,135	40	\$4,681	25%	***	\$0.37	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	12	20	\$125	75%	99%	\$1.10	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	12	20	\$125	75%	99%	\$1.10	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	51	20	\$164	75%	99%	\$0.36	0.00
Electric	Single Family	Heat Pump	Cool Roof	Lighter Colored Shingles (White)	Standard Roof Shingles	Savings Per Building	New	51	20	\$164	75%	99%	\$0.36	0.00
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	210	40	\$194	100%	64%	\$0.08	2,964,211
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	210	40	\$194	100%	64%	\$0.08	2,964,211
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	217	40	\$194	100%	64%	\$0.08	7,837,419
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	217	40	\$194	100%	64%	\$0.08	7,837,419
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	124	40	\$52	100%	64%	\$0.04	1,966,305
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	124	40	\$52	100%	64%	\$0.04	1,966,305
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	128	40	\$52	100%	64%	\$0.04	5,220,841

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	128	40	\$52	100%	64%	\$0.04	5,220,841
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	44	40	\$280	75%	64%	\$0.56	0.00
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	44	40	\$280	75%	64%	\$0.56	0.00
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	63	40	\$371	75%	64%	\$0.52	0.00
Electric	Single Family	Heat Pump	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	63	40	\$371	75%	64%	\$0.52	0.00
Electric	Single Family	Heat Pump	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	427	40	\$18,975	10%	***	\$3.94	0.00
Electric	Single Family	Heat Pump	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	436	40	\$24,917	10%	***	\$5.07	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	888	15	\$1,415	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	888	15	\$1,415	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	893	15	\$1,415	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source CEE Tier 2	CEE Tier 2 Air Source Heat Pump - SEER/EER 15/12.5 and HSPF 8.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	893	15	\$1,415	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	603	15	\$1,061	100%	N/A	\$0.23	73
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	603	15	\$1,061	100%	N/A	\$0.23	73
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	605	15	\$1,061	100%	N/A	\$0.23	9
Electric	Single Family	Heat Pump	Heat Pump - Air Source ENERGY STAR	ENERGY STAR Air Source Heat Pump - SEER/EER 14.5/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	605	15	\$1,061	100%	N/A	\$0.23	9
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,805	15	\$3,538	100%	N/A	\$0.26	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,805	15	\$3,538	100%	N/A	\$0.26	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,811	15	\$3,538	100%	N/A	\$0.26	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Enhanced	Enhanced Air Source Heat Pump - SEER/EER 18/14 and HSPF 9.5 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,811	15	\$3,538	100%	N/A	\$0.26	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	548	15	\$707	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	548	15	\$707	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	556	15	\$707	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Federal Standard 2015	Federal Standard 2015 Air Source Heat Pump - SEER/EER 14/12 and HSPF 8.2 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	556	15	\$707	100%	N/A	\$0.17	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,332	15	\$2,123	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,332	15	\$2,123	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,345	15	\$2,123	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Air Source Premium	Premium Air Source Heat Pump - SEER/EER 16/13 and HSPF 9.0 (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	1,345	15	\$2,123	100%	N/A	\$0.21	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	3,217	15	\$9,160	50%	N/A	\$0.37	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	3,217	15	\$9,160	50%	N/A	\$0.37	0.00
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	3,291	15	\$9,160	50%	N/A	\$0.36	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Heat Pump - Ground Source	ENERGY STAR Ground Source Heat Pump - EER 17.1 and 3.6 COP (Split System)	Federal Standard 2006 Air Source Heat Pump - SEER/EER 13/11 and HSPF 7.7 (Split System)	Per Installation	New	3,291	15	\$9,160	50%	N/A	\$0.36	0.00
Electric	Single Family	Heat Pump	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	485	20	\$827	85%	95%	\$0.19	0.00
Electric	Single Family	Heat Pump	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	495	20	\$1,082	85%	95%	\$0.25	0.00
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	985	15	\$412	95%	65%	\$0.05	12,522,747
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	985	15	\$412	95%	65%	\$0.05	12,522,747
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	1,011	15	\$412	95%	65%	\$0.05	33,553,461
Electric	Single Family	Heat Pump	Quality Installation - Heat Pump	Quality Installation of Heat Pump - Commissioning, Controls, and Proper Sizing	Standard Installation of Heat Pump	Savings Per Building	New	1,011	15	\$412	95%	65%	\$0.05	33,553,461
Electric	Single Family	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	357	40	\$474	20%	75%	\$0.12	0.00
Electric	Single Family	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	357	40	\$474	20%	75%	\$0.12	0.00
Electric	Single Family	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	472	40	\$628	20%	75%	\$0.12	3,815,931
Electric	Single Family	Heat Pump	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	472	40	\$628	20%	75%	\$0.12	3,815,931
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	382	40	\$321	75%	90%	\$0.07	5,880,887
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	382	40	\$321	75%	90%	\$0.07	5,880,887
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	437	40	\$355	75%	90%	\$0.07	17,277,604
Electric	Single Family	Heat Pump	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	437	40	\$355	75%	90%	\$0.07	17,277,604
Electric	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	256	20	\$455	50%	95%	\$0.20	0.00
Electric	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Savings Per Building	New	261	20	\$455	50%	95%	\$0.20	0.00
Electric	Single Family	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	299	11	\$172	95%	100%	\$0.09	5,939,086
Electric	Single Family	Heat Pump	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	305	11	\$172	95%	100%	\$0.09	15,762,424
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	215	25	\$2,368	95%	44%	\$1.12	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	215	25	\$2,368	95%	44%	\$1.12	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	290	25	\$3,095	95%	44%	\$1.08	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	290	25	\$3,095	95%	44%	\$1.08	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	430	25	\$9,405	95%	99%	\$2.23	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	430	25	\$9,405	95%	99%	\$2.23	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	581	25	\$12,293	95%	99%	\$2.15	0.00
Electric	Single Family	Heat Pump	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	581	25	\$12,293	95%	99%	\$2.15	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	333	40	\$1,422	85%	64%	\$0.38	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	333	40	\$1,422	85%	64%	\$0.38	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	472	40	\$1,882	85%	64%	\$0.35	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-15 (Existing Insulation)	Savings Per Building	Existing	472	40	\$1,882	85%	64%	\$0.35	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	106	40	\$194	100%	64%	\$0.16	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	106	40	\$194	100%	64%	\$0.16	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	114	40	\$194	100%	64%	\$0.15	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	114	40	\$194	100%	64%	\$0.15	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	63	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	63	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	67	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	Existing	67	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	4,863	15	\$6,573	50%	N/A	\$0.17	0.00
Electric	Single Family	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	Existing	5,219	15	\$8,592	50%	N/A	\$0.20	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,808	40	\$1,014	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	1,808	40	\$1,014	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	2,568	40	\$1,342	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-1 (Existing Insulation)	Savings Per Building	Existing	2,568	40	\$1,342	25%	64%	\$0.05	0.00
Electric	Single Family	Heat Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	189	11	\$320	75%	62%	\$0.27	0.00
Electric	Single Family	Heat Room	Infiltration Control - Reduction of Existing Conditions	Infiltration Control - 0.1 ACH Reduction	Existing Infiltration Conditions	Savings Per Building	Existing	203	11	\$418	75%	62%	\$0.33	0.00
Electric	Single Family	Heat Room	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	418	40	\$132	35%	64%	\$0.03	300,901
Electric	Single Family	Heat Room	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	418	40	\$132	35%	64%	\$0.03	300,901

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Room	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	481	40	\$151	35%	64%	\$0.03	3,276,550
Electric	Single Family	Heat Room	Insulation - Basement Wall	Insulation Basement Wall (R-10)	Average Existing Insulation (R-2.1)	Savings Per Building	Existing	481	40	\$151	35%	64%	\$0.03	3,276,550
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	200	40	\$332	0.0%	95%	\$0.15	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	200	40	\$332	0.0%	95%	\$0.15	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	239	40	\$370	0.0%	95%	\$0.14	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	Existing	239	40	\$370	0.0%	95%	\$0.14	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,098	40	\$1,881	75%	64%	\$0.15	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,098	40	\$1,881	75%	64%	\$0.15	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,313	40	\$2,096	75%	64%	\$0.14	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Code	R-13 (KY Code - Maximum Insulation Feasible)	R-2 (Existing Insulation)	Savings Per Building	Existing	1,313	40	\$2,096	75%	64%	\$0.14	0.00
Electric	Single Family	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	254	11	\$172	95%	100%	\$0.11	0.00
Electric	Single Family	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	Existing	273	11	\$172	95%	100%	\$0.10	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	413	25	\$7,807	95%	44%	\$1.92	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	413	25	\$7,807	95%	44%	\$1.92	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	579	25	\$10,205	95%	44%	\$1.79	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	579	25	\$10,205	95%	44%	\$1.79	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	89	25	\$1,950	95%	44%	\$2.21	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	89	25	\$1,950	95%	44%	\$2.21	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	126	25	\$2,549	95%	44%	\$2.06	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	126	25	\$2,549	95%	44%	\$2.06	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	503	25	\$13,602	95%	99%	\$2.75	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	503	25	\$13,602	95%	99%	\$2.75	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	705	25	\$17,780	95%	99%	\$2.57	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	Existing Window - Single Pane	Savings Per Building	Existing	705	25	\$17,780	95%	99%	\$2.57	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	179	25	\$7,745	95%	99%	\$4.39	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	179	25	\$7,745	95%	99%	\$4.39	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	252	25	\$10,124	95%	99%	\$4.09	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	Existing	252	25	\$10,124	95%	99%	\$4.09	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	45	40	\$289	95%	64%	\$0.57	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	45	40	\$289	95%	64%	\$0.57	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	64	40	\$383	95%	64%	\$0.53	0.00
Electric	Single Family	Heat Room	Ceiling Insulation (KY) - Above Code	R-49 (Above KY Code)	R-38 (KY Code)	Savings Per Building	New	64	40	\$383	95%	64%	\$0.53	0.00
Electric	Single Family	Heat Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	818	40	\$3,581	25%	**%	\$0.39	0.00
Electric	Single Family	Heat Room	Construction - ICF/SIP	Specialty Framing (Insulating Concrete Forms/Structural Insulated Panels)	Standard Wood Framing	Savings Per Building	New	877	40	\$4,681	25%	**%	\$0.47	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	106	40	\$194	100%	64%	\$0.16	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-10 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	114	40	\$194	100%	64%	\$0.15	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	63	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	63	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	67	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Door (KY) - Above Code	R-5 Door (Above KY Code)	R-2.9 Door (KY Code)	Savings Per Building	New	67	40	\$52	100%	64%	\$0.07	0.00
Electric	Single Family	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	New	4,202	15	\$6,573	95%	N/A	\$0.20	0.00
Electric	Single Family	Heat Room	Ductless Heat Pump (DHP)	Ductless Heat Pump - SEER/EER 18/12.5, HSPF 10.0	Standard Baseboard Heating - HSPF 3.41	Per Installation	New	4,509	15	\$8,592	95%	N/A	\$0.25	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	106	40	\$280	75%	64%	\$0.23	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	106	40	\$280	75%	64%	\$0.23	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	151	40	\$371	75%	64%	\$0.22	0.00
Electric	Single Family	Heat Room	Floor Insulation (KY) - Above Code	R-30 (Above KY Code)	R-19 (KY Code)	Savings Per Building	New	151	40	\$371	75%	64%	\$0.22	0.00
Electric	Single Family	Heat Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	314	40	\$18,975	10%	**%	\$5.35	0.00
Electric	Single Family	Heat Room	Green Roof	Ecoroof	Standard Roof	Savings Per Building	New	337	40	\$24,917	10%	**%	\$6.55	0.00
Electric	Single Family	Heat Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	571	20	\$827	85%	95%	\$0.16	0.00
Electric	Single Family	Heat Room	Infiltration Control - Reduction of New Thermal Shell	Thermal Shell 0.2 ACH with Heat Recovery Ventilator (HRV)	Standard New Construction Homes 0.35 ACH	Savings Per Building	New	613	20	\$1,082	85%	95%	\$0.20	0.00
Electric	Single Family	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	858	40	\$474	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	858	40	\$474	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	1,135	40	\$628	20%	75%	\$0.05	0.00
Electric	Single Family	Heat Room	Slab Insulation - Above Code	R-15 (Above Code)	R-10 (Code)	Savings Per Building	New	1,135	40	\$628	20%	75%	\$0.05	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	193	40	\$321	75%	90%	\$0.15	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	193	40	\$321	75%	90%	\$0.15	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	230	40	\$355	75%	90%	\$0.14	0.00
Electric	Single Family	Heat Room	Wall Insulation (KY) - Above Code	R-21 (Above KY Code)	R-13 (KY Code)	Savings Per Building	New	230	40	\$355	75%	90%	\$0.14	0.00
Electric	Single Family	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	220	11	\$172	95%	100%	\$0.12	0.00
Electric	Single Family	Heat Room	Wi-Fi Thermostat	WiFi Thermostat	Programmable Thermostat	Savings Per Building	New	236	11	\$172	95%	100%	\$0.12	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	109	25	\$2,368	95%	44%	\$2.21	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	109	25	\$2,368	95%	44%	\$2.21	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	153	25	\$3,095	95%	44%	\$2.06	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 1 Above Code	U-value 0.30 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	153	25	\$3,095	95%	44%	\$2.06	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	218	25	\$9,405	95%	99%	\$4.39	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	218	25	\$9,405	95%	99%	\$4.39	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	306	25	\$12,293	95%	99%	\$4.09	0.00
Electric	Single Family	Heat Room	Window (KY) - Tier 2 Above Code	U-value 0.25 Window (Above KY Code)	U-value 0.35 Window (KY Code)	Savings Per Building	New	306	25	\$12,293	95%	99%	\$4.09	0.00
Electric	Single Family	Home Audio System	Home Audio System - ENERGY STAR	ENERGY STAR Homes Audio System	Standard Homes Audio System	Per Installation	Existing	22	7	\$106	100%	N/A	\$1.08	0.00
Electric	Single Family	Home Audio System	Home Audio System - ENERGY STAR	ENERGY STAR Homes Audio System	Standard Homes Audio System	Per Installation	New	22	7	\$106	100%	N/A	\$1.08	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	7	\$1	50%	N/A	\$-0.04	88,956,456
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	25	7	\$1	50%	N/A	\$-0.04	88,956,456
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	26	7	\$1	50%	N/A	\$-0.04	81,353,707
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	Existing	26	7	\$1	50%	N/A	\$-0.04	81,353,707
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	28	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	28	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	29	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	Existing	29	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	25	7	\$1	50%	N/A	\$-0.04	28,654,917
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	25	7	\$1	50%	N/A	\$-0.04	28,654,917

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	26	7	\$1	50%	N/A	\$-0.04	29,147,058
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - High Efficiency CFL	High Efficiency Specialty Lamp -CFL	Standard Specialty Lamp - Incandescent	Per Installation	New	26	7	\$1	50%	N/A	\$-0.04	29,147,058
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	28	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	28	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	29	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Interior Specialty	Lighting Specialty Lamp - Premium Efficiency LED	Premium Efficiency Specialty Lamp -LED	Standard Specialty Lamp - Incandescent	Per Installation	New	29	12	\$37	85%	N/A	\$0.15	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	11	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	11	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	12	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	12	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	31	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	Existing	31	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	31	5	\$1	100%	N/A	\$-0.00	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	Existing	31	5	\$1	100%	N/A	\$-0.00	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	34	12	\$21	100%	N/A	\$0.08	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	34	12	\$21	100%	N/A	\$0.08	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	35	12	\$21	100%	N/A	\$0.07	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	Existing	35	12	\$21	100%	N/A	\$0.07	0.00
Electric	Single Family	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	Existing	6	10	\$60	2.5%	95%	\$1.67	0.00
Electric	Single Family	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	Existing	6	10	\$60	2.5%	95%	\$1.67	0.00
Electric	Single Family	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	Existing	4	10	\$68	10%	80%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	Existing	4	10	\$68	10%	80%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	Existing	4	10	\$68	2.3%	70%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	Existing	4	10	\$68	2.3%	70%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	11	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	11	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	12	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2014	EISA Standard 2014 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	12	2	\$0.91	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	31	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - EISA Standard 2020	EISA Standard 2020 General Service Lamp - Incandescent	Standard General Service Lamp - Incandescent	Per Installation	New	31	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	30	5	\$1	100%	N/A	\$-0.01	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	31	5	\$1	100%	N/A	\$-0.00	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - High Efficiency CFL	High Efficiency General Service Lamp -CFL	Standard General Service Lamp - Incandescent	Per Installation	New	31	5	\$1	100%	N/A	\$-0.00	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	34	12	\$21	100%	N/A	\$0.08	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	34	12	\$21	100%	N/A	\$0.08	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	35	12	\$21	100%	N/A	\$0.07	0.00
Electric	Single Family	Lighting Standard	Lighting General Service Lamp - Premium Efficiency LED	Premium Efficiency General Service Lamp -LED	Standard General Service Lamp - Incandescent	Per Installation	New	35	12	\$21	100%	N/A	\$0.07	0.00
Electric	Single Family	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	New	6	10	\$60	2.5%	95%	\$1.67	0.00
Electric	Single Family	Lighting Standard	Occupancy Sensor - Interior Lighting	Install Wall-Switch Occupancy Sensor on Interior Lighting	Manual Control on Interior Lighting	Savings Per Building	New	6	10	\$60	2.5%	95%	\$1.67	0.00
Electric	Single Family	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	New	4	10	\$68	10%	80%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Photocell Daylighting Control - Interior/ Exterior Lighting	Install Photocell on Interior/Exterior Lighting	Manual Control on Interior/Exterior Lighting	Savings Per Building	New	4	10	\$68	10%	80%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	New	4	10	\$68	2.3%	70%	\$2.82	0.00
Electric	Single Family	Lighting Standard	Time Clock - Exterior Lighting	Time Clock on Exterior Lighting	Manual Control on Exterior Lighting	Savings Per Building	New	4	10	\$68	2.3%	70%	\$2.82	0.00
Electric	Single Family	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	Existing	14	5	\$1.00	100%	N/A	\$0.02	1,839,490
Electric	Single Family	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	Existing	14	5	\$1.00	100%	N/A	\$0.02	1,877,208
Electric	Single Family	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	New	14	5	\$1.00	100%	N/A	\$0.02	461,601
Electric	Single Family	Monitor	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Installation	New	14	5	\$1.00	100%	N/A	\$0.02	479,099
Electric	Single Family	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	Existing	149	6	\$1.00	100%	N/A	\$0.00	10,999,488
Electric	Single Family	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	Existing	149	6	\$1.00	100%	N/A	\$0.00	11,885,424
Electric	Single Family	Multifunction Device	Office Multifunction Device - ENERGY STAR	ENERGY STAR Multifunction Device "All-In-One" Imaging Equipment	Standard Multifunction Device "All-In-One" Imaging Equipment	Per Installation	New	149	6	\$1.00	100%	N/A	\$0.00	0.00
Electric	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard Power Strip	Savings Per Building	Existing	43	4	\$22	20%	85%	\$0.18	0.00
Electric	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard Power Strip	Savings Per Building	New	43	4	\$22	20%	85%	\$0.18	0.00
Electric	Single Family	Pool Pump	Pool Pump - 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per Installation	Existing	440	10	\$175	75%	N/A	\$0.07	0.00
Electric	Single Family	Pool Pump	Pool Pump - VSD	Pool Pump with Variable Speed Drive (VSD)	Standard 1 Speed Pool Pump	Per Installation	Existing	1,170	10	\$750	100%	N/A	\$0.11	0.00
Electric	Single Family	Pool Pump	Pool Pump Timer	Pool Pump Timer	No Timer	Savings Per Building	Existing	803	10	\$82	6.3%	90%	\$0.02	4,483,636
Electric	Single Family	Pool Pump	Pool Pump Timer	Pool Pump Timer	No Timer	Savings Per Building	Existing	803	10	\$82	6.3%	90%	\$0.02	5,421,208
Electric	Single Family	Pool Pump	Pool Pump Timer	Pool Pump Timer	No Timer	Savings Per Building	Existing	803	10	\$82	7.3%	90%	\$0.02	4,483,636
Electric	Single Family	Pool Pump	Pool Pump Timer	Pool Pump Timer	No Timer	Savings Per Building	Existing	803	10	\$82	7.3%	90%	\$0.02	5,421,208
Electric	Single Family	Pool Pump	Pool Pump - 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per Installation	New	440	10	\$175	75%	N/A	\$0.07	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Pool Pump	Pool Pump - VSD	Pool Pump with Variable Speed Drive (VSD)	Standard 1 Speed Pool Pump	Per Installation	New	1,170	10	\$750	100%	N/A	\$0.11	0.00
Electric	Single Family	Printer	Office Printer - ENERGY STAR	ENERGY STAR Office Printer	Standard Office Printer	Per Installation	Existing	91	5	\$1.00	100%	N/A	\$0.00	0.00
Electric	Single Family	Printer	Office Printer - ENERGY STAR	ENERGY STAR Office Printer	Standard Office Printer	Per Installation	New	91	5	\$1.00	100%	N/A	\$0.00	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	140	12	\$472	100%	N/A	\$0.51	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	140	12	\$472	100%	N/A	\$0.51	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	145	12	\$472	100%	N/A	\$0.49	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	145	12	\$472	100%	N/A	\$0.49	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	168	12	\$633	100%	N/A	\$0.57	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	168	12	\$633	100%	N/A	\$0.57	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	174	12	\$633	100%	N/A	\$0.54	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	174	12	\$633	100%	N/A	\$0.54	0.00
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	112	12	\$37	100%	N/A	\$0.05	34,820,595
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	112	12	\$37	100%	N/A	\$0.05	34,820,595
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	116	12	\$37	100%	N/A	\$0.05	35,320,296
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	116	12	\$37	100%	N/A	\$0.05	35,320,296
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	55	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	55	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	57	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	Existing	57	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Removal of Secondary	Proper Disposal of Refrigerator	Existing Non-Efficient Refrigerator	Savings Per Building	Existing	1,140	5	\$30	32%	100%	\$0.01	60,967,249
Electric	Single Family	Refrigerator	Refrigerator - Removal of Secondary	Proper Disposal of Refrigerator	Existing Non-Efficient Refrigerator	Savings Per Building	Existing	1,140	5	\$30	32%	100%	\$0.01	66,342,570
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	140	12	\$472	100%	N/A	\$0.51	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	140	12	\$472	100%	N/A	\$0.51	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	145	12	\$472	100%	N/A	\$0.49	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	145	12	\$472	100%	N/A	\$0.49	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	168	12	\$633	100%	N/A	\$0.57	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	168	12	\$633	100%	N/A	\$0.57	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	174	12	\$633	100%	N/A	\$0.54	0.00
Electric	Single Family	Refrigerator	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	174	12	\$633	100%	N/A	\$0.54	0.00
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	112	12	\$37	100%	N/A	\$0.05	7,449,876

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	112	12	\$37	100%	N/A	\$0.05	7,449,876
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	116	12	\$37	100%	N/A	\$0.05	8,114,403
Electric	Single Family	Refrigerator	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	116	12	\$37	100%	N/A	\$0.05	8,114,403
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	55	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	55	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	57	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Refrigerator	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Installation	New	57	12	\$22	100%	N/A	\$0.06	0.00
Electric	Single Family	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	Existing	201	5	\$6	100%	N/A	\$0.01	16,200,459
Electric	Single Family	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	Existing	201	5	\$6	100%	N/A	\$0.01	99,782,693
Electric	Single Family	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	New	201	5	\$6	100%	N/A	\$0.01	10,464,404
Electric	Single Family	Set Top Box	Set Top Box - ENERGY STAR	ENERGY STAR Set Top Box	Standard Set Top Box	Per Installation	New	201	5	\$6	100%	N/A	\$0.01	11,505,190
Electric	Single Family	TV	TV - ENERGY STAR	ENERGY STAR TV	Standard TV	Per Installation	Existing	130	5	\$42	100%	N/A	\$0.09	0.00
Electric	Single Family	TV	TV - ENERGY STAR	ENERGY STAR TV	Standard TV	Per Installation	New	130	5	\$42	100%	N/A	\$0.09	0.00
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	357	20	\$120	100%	N/A	\$0.04	71,251,439
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	357	20	\$120	100%	N/A	\$0.04	71,251,439
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	394	20	\$120	100%	N/A	\$0.03	33,825,163
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	Existing	394	20	\$120	100%	N/A	\$0.03	33,825,163
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	357	20	\$120	100%	N/A	\$0.04	37,846,580
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	357	20	\$120	100%	N/A	\$0.04	37,846,580
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	394	10	\$120	100%	N/A	\$0.05	0.00
Electric	Single Family	Ventilation and Circulation	Motor - ECM	Electronically Commutated Motor (ECM)	Standard Motor	Per Installation	New	394	10	\$120	100%	N/A	\$0.05	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	2,327	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	2,327	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	2,395	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	2,395	13	\$1,684	75%	N/A	\$0.11	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	52	13	\$1,003	75%	N/A	\$3.25	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	52	13	\$1,003	75%	N/A	\$3.25	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	92	13	\$1,003	75%	N/A	\$1.83	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	Existing	92	13	\$1,003	75%	N/A	\$1.83	0.00
Electric	Single Family	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,309	20	\$5,517	20%	N/A	\$0.29	0.00
Electric	Single Family	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,337	20	\$5,517	20%	N/A	\$0.28	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	2,327	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	2,327	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	2,395	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Enhanced Efficiency	Enhanced Efficiency Heat Pump Water Heater > 55 GAL - EF 2.2	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	2,395	13	\$1,684	75%	N/A	\$0.11	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	52	13	\$1,003	75%	N/A	\$3.25	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	52	13	\$1,003	75%	N/A	\$3.25	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	92	13	\$1,003	75%	N/A	\$1.83	0.00
Electric	Single Family	Water Heat GT 55 Gal	Heat Pump Water Heater - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater > 55 GAL - EF 1.97	Federal Standard 2004 Storage Water Heater > 55 GAL - EF 0.87	Per Installation	New	92	13	\$1,003	75%	N/A	\$1.83	0.00
Electric	Single Family	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,309	20	\$5,517	20%	N/A	\$0.29	0.00
Electric	Single Family	Water Heat GT 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per installation	New	2,337	20	\$5,517	20%	N/A	\$0.28	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	307	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	307	11	\$198	99%	33%	\$0.10	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	56	11	\$161	71%	30%	\$0.45	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	56	11	\$161	71%	30%	\$0.45	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	47	11	\$154	71%	30%	\$0.51	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	47	11	\$154	71%	30%	\$0.51	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	453	40	\$935	30%	***%	\$0.18	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	458	40	\$935	30%	***%	\$0.18	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	137	10	\$5	100%	25%	\$0.01	4,015,049
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	137	10	\$5	100%	25%	\$0.01	4,015,049
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	143	10	\$5	100%	25%	\$0.01	11,898,194
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	143	10	\$5	100%	25%	\$0.01	11,898,194
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	120	10	\$2	75%	65%	\$0.00	6,850,677
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	120	10	\$2	75%	65%	\$0.00	6,850,677
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	125	10	\$2	75%	65%	\$0.00	20,301,294
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	125	10	\$2	75%	65%	\$0.00	20,301,294
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	293	10	\$8	75%	95%	\$0.01	24,316,140
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	293	10	\$8	75%	95%	\$0.01	24,316,140
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	305	10	\$8	75%	95%	\$0.00	72,058,440
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	305	10	\$8	75%	95%	\$0.00	72,058,440
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	427	10	\$15	100%	65%	\$0.01	91,774,409
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	427	10	\$15	100%	65%	\$0.01	91,774,409
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	432	10	\$15	100%	65%	\$0.01	32,711,452
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	432	10	\$15	100%	65%	\$0.01	32,711,452
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	427	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	427	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	432	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	432	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	1,471,677

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	4,153,724
Electric	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	1,471,677
Electric	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	4,153,724
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	435	11	\$210	99%	33%	\$0.08	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	307	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	307	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	56	11	\$161	71%	30%	\$0.45	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	56	11	\$161	71%	30%	\$0.45	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	56	11	\$155	71%	30%	\$0.44	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	47	11	\$154	71%	30%	\$0.51	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	47	11	\$154	71%	30%	\$0.51	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	451	40	\$935	60%	***	\$0.18	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	456	40	\$935	60%	***	\$0.18	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	120	10	\$2	75%	65%	\$0.00	1,022,756
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	120	10	\$2	75%	65%	\$0.00	1,022,756
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	125	10	\$2	75%	65%	\$0.00	2,865,892
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	125	10	\$2	75%	65%	\$0.00	2,865,892
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	293	10	\$8	75%	95%	\$0.01	3,630,225
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	293	10	\$8	75%	95%	\$0.01	3,630,225
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	305	10	\$8	75%	95%	\$0.00	10,172,343
Electric	Single Family	Water Heat Gt 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	305	10	\$8	75%	95%	\$0.00	10,172,343
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	427	10	\$15	100%	65%	\$0.01	12,955,607
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	427	10	\$15	100%	65%	\$0.01	12,955,607
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	432	10	\$15	100%	65%	\$0.01	4,883,584
Electric	Single Family	Water Heat Gt 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	432	10	\$15	100%	65%	\$0.01	4,883,584
Electric	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Single Family	Water Heat Gt 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,972	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	1,972	13	\$1,123	75%	N/A	\$0.09	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Potential (kWh)
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,035	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,035	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,309	20	\$5,517	20%	N/A	\$0.29	0.00
Electric	Single Family	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	2,337	20	\$5,517	20%	N/A	\$0.28	0.00
Electric	Single Family	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	117	13	\$72	100%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	Existing	118	13	\$72	100%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,972	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	1,972	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,035	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Heat Pump Water Heater - ENERGY STAR	ENERGY STAR Heat Pump Water Heater = 55 GAL - EF 2.0	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,035	13	\$1,123	75%	N/A	\$0.09	0.00
Electric	Single Family	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,309	20	\$5,517	20%	N/A	\$0.29	0.00
Electric	Single Family	Water Heat LE 55 Gal	Solar Hot Water (SHW)	Solar Water Heater = 55 GAL	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	2,337	20	\$5,517	20%	N/A	\$0.28	0.00
Electric	Single Family	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	117	13	\$72	100%	N/A	\$0.09	-1096.286844
Electric	Single Family	Water Heat LE 55 Gal	Water Heater - Federal Standard 2015 Storage	Federal Standard 2015 Storage Water Heater = 55 GAL - EF 0.95	Federal Standard 2004 Storage Water Heater = 55 GAL - EF 0.92	Per Installation	New	118	13	\$72	100%	N/A	\$0.09	-1527.823716
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	236	11	\$140	99%	33%	\$0.09	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	307	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	307	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	324	11	\$198	99%	33%	\$0.10	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	Existing	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	328	11	\$152	99%	33%	\$0.07	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	Existing	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	Existing	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	56	11	\$161	71%	30%	\$0.45	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	56	11	\$161	71%	30%	\$0.45	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	59	11	\$161	71%	30%	\$0.43	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	Existing	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	47	11	\$154	71%	30%	\$0.51	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	Existing	47	11	\$154	71%	30%	\$0.51	0.00
Electric	Single Family	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	453	40	\$935	30%	***	\$0.18	0.00
Electric	Single Family	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	Existing	458	40	\$935	30%	***	\$0.18	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	137	10	\$5	100%	25%	\$0.01	5,850,558
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	137	10	\$5	100%	25%	\$0.01	5,850,558
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	143	10	\$5	100%	25%	\$0.01	18,928,535
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Federal Standard 1994	Federal Standard 1994 Aerator - 2.2 GPM	Existing Faucet Aerator - 3.0 GPM	Savings Per Building	Existing	143	10	\$5	100%	25%	\$0.01	18,928,535
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	120	10	\$2	75%	65%	\$0.00	9,982,515
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	120	10	\$2	75%	65%	\$0.00	9,982,515
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	125	10	\$2	75%	65%	\$0.00	32,296,814
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	125	10	\$2	75%	65%	\$0.00	32,296,814
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	293	10	\$8	75%	95%	\$0.01	35,432,445
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	293	10	\$8	75%	95%	\$0.01	35,432,445
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	305	10	\$8	75%	95%	\$0.00	14,635,944
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	Existing	305	10	\$8	75%	95%	\$0.00	14,635,944
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	427	10	\$15	100%	65%	\$0.01	46,001,579
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	427	10	\$15	100%	65%	\$0.01	46,001,579
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	432	10	\$15	100%	65%	\$0.01	47,665,737
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	Existing	432	10	\$15	100%	65%	\$0.01	47,665,737
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	427	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	427	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	432	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead - Federal Standard 1994	Federal Standard 1994 Showerhead - 2.5 GPM	Existing Faucet Showerhead - 3.0 GPM	Savings Per Building	Existing	432	10	\$44	100%	10%	\$0.02	0.00
Electric	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	2,144,466
Electric	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	6,608,054
Electric	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	2,144,466
Electric	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	Existing	53	15	\$3	95%	30%	\$0.01	6,608,054

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	236	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	249	11	\$140	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	84	11	\$58	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	89	11	\$58	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	413	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 2	CEE Tier 2 Clothes Washer - MEF 2.2 and WF 4.5 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	435	11	\$210	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	307	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	307	11	\$198	99%	33%	\$0.10	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	324	11	\$198	99%	33%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	155	11	\$116	99%	33%	\$0.12	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Savings Per Building	New	163	11	\$116	99%	33%	\$0.11	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	483	11	\$268	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - CEE Tier 3	CEE Tier 3 Clothes Washer - MEF 2.4 and WF 4.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	509	11	\$268	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	328	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - ENERGY STAR	ENERGY STAR Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	345	11	\$152	99%	33%	\$0.07	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	176	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2016	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Standard Clothes Washer - MEF 1.48 and WF 9.5 (Electric DHW & Dryer)	Savings Per Building	New	185	11	\$70	99%	33%	\$0.06	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	152	11	\$81	99%	33%	\$0.09	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Clothes Washer - Federal Standard 2018	Federal Standard 2018 Clothes Washer - MEF 2.0 and WF 6.0 (Electric DHW & Dryer)	Federal Standard 2016 Clothes Washer - MEF 1.72 and WF 8.0 (Electric DHW & Dryer)	Savings Per Building	New	160	11	\$81	99%	33%	\$0.08	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	56	11	\$161	71%	30%	\$0.45	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	56	11	\$161	71%	30%	\$0.45	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	59	11	\$161	71%	30%	\$0.43	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - ENERGY STAR	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	11	11	\$7	71%	30%	\$0.10	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	98	11	\$309	71%	30%	\$0.50	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	104	11	\$309	71%	30%	\$0.47	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	53	11	\$155	71%	30%	\$0.46	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Enhanced Efficiency	Enhanced Efficiency Dishwasher - 250 kWh/yr and 4.25 gal/cycle	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Savings Per Building	New	56	11	\$155	71%	30%	\$0.44	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	45	11	\$154	71%	30%	\$0.54	0.00
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	47	11	\$154	71%	30%	\$0.51	0.00

Table F.1. Residential Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Single Family	Water Heat Le 55 Gal	Dishwasher - Federal Standard 2014	Federal Standard 2014 Dishwasher - 307 kWh/yr and 5.0 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Savings Per Building	New	47	11	\$154	71%	30%	\$0.51	0.00
Electric	Single Family	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	433	40	\$935	60%	***	\$0.19	0.00
Electric	Single Family	Water Heat Le 55 Gal	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Savings Per Building	New	438	40	\$935	60%	***	\$0.19	0.00
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	120	10	\$2	75%	65%	\$0.00	1,469,217
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	120	10	\$2	75%	65%	\$0.00	1,469,217
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	125	10	\$2	75%	65%	\$0.00	4,487,413
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 1	Tier 1 Aerator - 1.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	125	10	\$2	75%	65%	\$0.00	4,487,413
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	293	10	\$8	75%	95%	\$0.01	5,214,913
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	293	10	\$8	75%	95%	\$0.01	5,214,913
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	305	10	\$8	75%	95%	\$0.00	15,927,850
Electric	Single Family	Water Heat Le 55 Gal	Faucet Aerator - Tier 2	Tier 2 Aerator - 0.5 GPM	Federal Standard 1994 Aerator - 2.2 GPM	Savings Per Building	New	305	10	\$8	75%	95%	\$0.00	15,927,850
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	427	10	\$15	100%	65%	\$0.01	20,285,883
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	427	10	\$15	100%	65%	\$0.01	20,285,883
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	432	10	\$15	100%	65%	\$0.01	7,015,397
Electric	Single Family	Water Heat Le 55 Gal	Low-Flow Showerhead	Low-Flow Showerhead - 2.0 GPM	Federal Standard 1994 Showerhead - 2.5 GPM	Savings Per Building	New	432	10	\$15	100%	65%	\$0.01	7,015,397
Electric	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00
Electric	Single Family	Water Heat Le 55 Gal	Pipe Insulation - Water Heater	R-4 Pipe Wrap	No Pipe Insulation	Savings Per Building	New	53	15	\$3	100%	0%	\$0.01	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	137	4	\$15	100%	N/A	\$0.04	131,064
Electric	Grocery	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	137	4	\$15	100%	N/A	\$0.04	138,605
Electric	Grocery	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	137	4	\$15	100%	N/A	\$0.04	38,509
Electric	Grocery	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	137	4	\$15	100%	N/A	\$0.04	43,307
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	41	12	\$107	19%	70%	\$0.39	0.00
Electric	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	196	12	\$47	19%	55%	\$0.04	137,268
Electric	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	196	12	\$47	19%	55%	\$0.04	177,643
Electric	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	557	12	\$356	55%	85%	\$0.10	0.00
Electric	Grocery	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	962	12	\$542	14%	75%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	341	12	\$193	19%	90%	\$0.08	0.00
Electric	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	41	12	\$107	19%	70%	\$0.39	0.00
Electric	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	41	12	\$107	19%	70%	\$0.39	0.00
Electric	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	41	12	\$107	19%	70%	\$0.39	0.00
Electric	Grocery	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	New	41	12	\$107	19%	70%	\$0.39	0.00
Electric	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	196	12	\$47	19%	55%	\$0.04	18,344
Electric	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	196	12	\$47	19%	55%	\$0.04	18,344
Electric	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	196	12	\$47	19%	55%	\$0.04	18,454
Electric	Grocery	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	196	12	\$47	19%	55%	\$0.04	18,454
Electric	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	557	12	\$356	55%	85%	\$0.10	0.00
Electric	Grocery	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	962	12	\$542	14%	75%	\$0.08	0.00
Electric	Grocery	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,954	15	\$11,757	1.0%	70%	\$0.79	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,961	15	\$11,757	1.0%	70%	\$0.78	0.00
Electric	Grocery	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	651	15	\$1,353	80%	95%	\$0.27	0.00
Electric	Grocery	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	653	15	\$1,353	80%	95%	\$0.27	0.00
Electric	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	186	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	475	15	\$351	100%	N/A	\$0.10	0.00
Electric	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	977	10	\$2,193	10%	90%	\$0.38	0.00
Electric	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	980	10	\$2,193	10%	90%	\$0.38	0.00
Electric	Grocery	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	977	5	\$312	75%	75%	\$0.09	0.00
Electric	Grocery	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	980	5	\$312	75%	75%	\$0.09	1,960,608
Electric	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	162	18	\$928	45%	85%	\$0.67	0.00
Electric	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	163	18	\$928	45%	85%	\$0.67	0.00
Electric	Grocery	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	3,938	15	-\$7350.3604	35%	N/A	-\$0.31	1,668,879
Electric	Grocery	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	Existing	3,938	15	-\$7350.3604	35%	N/A	-\$0.31	3,042,167
Electric	Grocery	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	293	12	\$5,450	10%	85%	\$2.79	0.00
Electric	Grocery	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	294	12	\$5,450	10%	85%	\$2.78	0.00
Electric	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	651	40	\$39,179	2.0%	100%	\$5.34	0.00
Electric	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	653	40	\$39,179	2.0%	100%	\$5.32	0.00
Electric	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	325	12	\$76	10%	60%	\$0.04	87,032
Electric	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	326	12	\$76	10%	60%	\$0.04	57,977
Electric	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	25	25	\$2,036	45%	65%	\$8.24	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	25	25	\$2,036	45%	65%	\$8.22	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	2	25	\$980	25%	85%	\$44.10	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	2	25	\$980	25%	85%	\$43.96	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	195	20	\$521	45%	60%	\$0.30	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	196	20	\$1,217	45%	60%	\$0.70	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	117	20	\$91	45%	85%	\$0.09	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	117	20	\$213	45%	85%	\$0.20	0.00
Electric	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	814	7	\$762	90%	95%	\$0.21	0.00
Electric	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	817	7	\$762	90%	95%	\$0.21	0.00
Electric	Grocery	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	651	5	\$618	95%	50%	\$0.28	0.00
Electric	Grocery	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	653	5	\$618	95%	50%	\$0.28	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	436	10	\$678	35%	70%	\$0.26	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	436	10	\$678	35%	70%	\$0.26	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	558	10	\$678	35%	70%	\$0.21	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	558	10	\$678	35%	70%	\$0.21	0.00
Electric	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	822	25	\$7	15%	90%	\$0.00	639,098
Electric	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	824	25	\$7	15%	90%	\$0.00	423,907
Electric	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	749	25	\$107	15%	25%	\$0.01	125,741
Electric	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	752	25	\$107	15%	25%	\$0.01	83,152
Electric	Grocery	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	197	7	\$2,862	95%	95%	\$3.21	0.00
Electric	Grocery	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	198	7	\$2,862	95%	95%	\$3.20	0.00
Electric	Grocery	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	603	15	\$1,353	80%	95%	\$0.29	0.00
Electric	Grocery	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	605	15	\$1,353	80%	95%	\$0.29	0.00
Electric	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.2 EER	Per Building	New	186	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	475	15	\$280	100%	N/A	\$0.08	57,047
Electric	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	475	15	\$280	100%	N/A	\$0.08	84,195
Electric	Grocery	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	905	5	\$312	25%	25%	\$0.10	0.00
Electric	Grocery	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	907	5	\$312	25%	25%	\$0.10	20,311
Electric	Grocery	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	3,938	15	\$-5358.7272	35%	N/A	\$-0.23	563,275
Electric	Grocery	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.2 EER	Per Building	New	3,938	15	\$-5358.7272	35%	N/A	\$-0.23	1,086,562

Table F.2. Commercial Metric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	271	12	\$5,450	10%	85%	\$3.01	0.00
Electric	Grocery	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	272	12	\$5,450	10%	85%	\$3.00	0.00
Electric	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	603	40	\$39,179	2.0%	100%	\$5.76	0.00
Electric	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	605	40	\$39,179	2.0%	100%	\$5.75	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	2	25	\$980	75%	85%	\$47.62	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	2	25	\$980	75%	85%	\$47.48	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	108	20	\$91	45%	85%	\$0.09	0.00
Electric	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	108	20	\$213	45%	85%	\$0.22	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	436	10	\$678	0.0%	0%	\$0.26	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	436	10	\$678	0.0%	0%	\$0.26	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	558	10	\$678	0.0%	0%	\$0.21	0.00
Electric	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	558	10	\$678	0.0%	0%	\$0.21	0.00
Electric	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	761	25	\$7	80%	90%	\$0.00	388,069
Electric	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	763	25	\$7	80%	90%	\$0.00	215,528
Electric	Grocery	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	8	6	\$0.00	100%	N/A	\$0.00	72,179
Electric	Grocery	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	8	6	\$0.00	100%	N/A	\$0.00	75,616
Electric	Grocery	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	8	6	\$0.00	100%	N/A	\$0.00	11,283
Electric	Grocery	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	8	6	\$0.00	100%	N/A	\$0.00	12,843
Electric	Grocery	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	18	4	\$20	100%	N/A	\$0.40	0.00
Electric	Grocery	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	18	4	\$20	100%	N/A	\$0.40	4
Electric	Grocery	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	18	4	\$20	100%	N/A	\$0.40	6
Electric	Grocery	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	0.90	20	\$0.00	100%	N/A	\$0.00	0.00
Electric	Grocery	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	2	20	\$0.00	100%	N/A	\$0.00	7,082
Electric	Grocery	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	2	20	\$0.00	100%	N/A	\$0.00	-125.352972
Electric	Grocery	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	16	20	\$2	8.8%	100%	\$0.02	15,421
Electric	Grocery	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	16	20	\$2	8.8%	100%	\$0.02	15,421
Electric	Grocery	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	20	20	\$2	8.8%	100%	\$0.01	16,349
Electric	Grocery	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	20	20	\$2	8.8%	100%	\$0.01	16,349
Electric	Grocery	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	0.90	20	\$0.00	100%	N/A	\$0.00	0.00

Table F.2. Commercial Sector Energy Efficiency Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	2	20	\$0.00	100%	N/A	\$0.00	2,457
Electric	Grocery	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	2	20	\$0.00	100%	N/A	\$0.00	-16,27608
Electric	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	403	15	\$1,306	100%	N/A	\$0.42	0.00
Electric	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/h - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	997	15	\$2,613	100%	N/A	\$0.34	0.00
Electric	Grocery	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	3,324	15	\$11,757	1.0%	70%	\$0.46	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	565	15	\$1,353	80%	95%	\$0.31	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	565	15	\$1,353	80%	95%	\$0.31	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	751	15	\$1,353	80%	95%	\$0.24	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	751	15	\$1,353	80%	95%	\$0.24	0.00
Electric	Grocery	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,662	5	\$312	75%	75%	\$0.05	1,346,001
Electric	Grocery	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,662	5	\$312	75%	75%	\$0.05	2,948,683
Electric	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	277	18	\$928	45%	85%	\$0.40	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	535	14	\$6,652	5.0%	95%	\$1.69	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	535	14	\$6,652	5.0%	95%	\$1.69	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	814	14	\$6,652	5.0%	95%	\$1.11	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	814	14	\$6,652	5.0%	95%	\$1.11	0.00
Electric	Grocery	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	498	12	\$5,450	10%	85%	\$1.64	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	565	40	\$39,179	2.0%	100%	\$6.15	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	565	40	\$39,179	2.0%	100%	\$6.15	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	751	40	\$39,179	2.0%	100%	\$4.63	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	751	40	\$39,179	2.0%	100%	\$4.63	0.00
Electric	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	Existing	2,853	30	\$77,465	5.0%	N/A	\$2.53	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	831	12	\$76	10%	60%	\$0.01	59,949
Electric	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	831	12	\$76	10%	60%	\$0.01	130,762
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	722	25	\$2,036	45%	65%	\$0.29	504,209
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	722	25	\$2,036	45%	65%	\$0.29	504,209
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,077	25	\$2,036	45%	65%	\$0.19	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,077	25	\$2,036	45%	65%	\$0.19	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	91	25	\$980	25%	85%	\$1.10	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	91	25	\$980	25%	85%	\$1.10	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	136	25	\$980	25%	85%	\$0.73	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	136	25	\$980	25%	85%	\$0.73	0.00
Electric	Grocery	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	332	20	\$521	45%	60%	\$0.18	0.00
Electric	Grocery	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	332	20	\$1,217	45%	60%	\$0.41	0.00
Electric	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	199	20	\$91	45%	85%	\$0.05	91,309
Electric	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	199	20	\$213	45%	85%	\$0.12	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	740	25	\$3,635	15%	85%	\$0.50	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	740	25	\$3,635	15%	85%	\$0.50	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,361	25	\$3,635	15%	85%	\$0.27	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,361	25	\$3,635	15%	85%	\$0.27	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	146	25	\$1,121	15%	95%	\$0.78	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	146	25	\$1,121	15%	95%	\$0.78	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	265	25	\$1,121	15%	95%	\$0.43	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	265	25	\$1,121	15%	95%	\$0.43	0.00
Electric	Grocery	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,767	25	\$8,938	10%	45%	\$0.52	0.00
Electric	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,385	7	\$762	90%	95%	\$0.12	0.00
Electric	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,385	7	\$762	90%	95%	\$0.12	3,356,058
Electric	Grocery	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	1,108	3	\$618	95%	50%	\$0.25	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	222	10	\$678	35%	70%	\$0.52	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	222	10	\$678	35%	70%	\$0.52	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	378	10	\$678	35%	70%	\$0.30	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	378	10	\$678	35%	70%	\$0.30	0.00
Electric	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	693	25	\$7	15%	90%	\$0.00	144,037
Electric	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	693	25	\$7	15%	90%	\$0.00	313,369

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	760	25	\$107	15%	25%	\$0.01	34,361
Electric	Grocery	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	760	25	\$107	15%	25%	\$0.01	74,420
Electric	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - High Efficiency	High Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	403	15	\$1,045	100%	N/A	\$0.34	0.00
Electric	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	997	15	\$2,090	100%	N/A	\$0.27	99
Electric	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER, 3.8 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	997	15	\$2,090	100%	N/A	\$0.27	120
Electric	Grocery	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	334	7	\$2,862	95%	95%	\$1.89	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	520	15	\$1,353	80%	95%	\$0.34	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	520	15	\$1,353	80%	95%	\$0.34	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	692	15	\$1,353	80%	95%	\$0.26	0.00
Electric	Grocery	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	692	15	\$1,353	80%	95%	\$0.26	0.00
Electric	Grocery	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,531	5	\$312	25%	25%	\$0.06	18,587
Electric	Grocery	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,531	5	\$312	25%	25%	\$0.06	31,819
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	493	14	\$6,652	5.0%	95%	\$1.84	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	493	14	\$6,652	5.0%	95%	\$1.84	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	750	14	\$6,652	5.0%	95%	\$1.21	0.00
Electric	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	750	14	\$6,652	5.0%	95%	\$1.21	0.00
Electric	Grocery	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	459	12	\$5,450	10%	85%	\$1.78	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	520	40	\$39,179	2.0%	100%	\$6.68	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	520	40	\$39,179	2.0%	100%	\$6.68	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	692	40	\$39,179	2.0%	100%	\$5.02	0.00
Electric	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	692	40	\$39,179	2.0%	100%	\$5.02	0.00
Electric	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 11.0 EER, 3.3 COP	Per Building	New	2,853	30	\$39,793	5.0%	N/A	\$1.28	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	83	25	\$980	75%	85%	\$1.19	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20d (KY State Code)	Per Building	New	83	25	\$980	75%	85%	\$1.19	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	125	25	\$980	75%	85%	\$0.79	0.00
Electric	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	125	25	\$980	75%	85%	\$0.79	0.00
Electric	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	183	20	\$91	45%	85%	\$0.06	9,889
Electric	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	183	20	\$213	45%	85%	\$0.13	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	134	25	\$1,121	15%	95%	\$0.85	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	134	25	\$1,121	15%	95%	\$0.85	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	245	25	\$1,121	15%	95%	\$0.47	0.00
Electric	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	245	25	\$1,121	15%	95%	\$0.47	0.00
Electric	Grocery	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	150	25	\$934	95%	85%	\$0.63	0.00
Electric	Grocery	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	150	25	\$934	95%	85%	\$0.63	31,500
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	New	222	10	\$678	0.0%	0%	\$0.52	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	New	222	10	\$678	0.0%	0%	\$0.52	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	New	378	10	\$678	0.0%	0%	\$0.30	0.00
Electric	Grocery	Heat Pump	Window Film	Window Film	No Film	Per Building	New	378	10	\$678	0.0%	0%	\$0.30	0.00
Electric	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	639	25	\$7	80%	90%	\$0.00	85,782
Electric	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	639	25	\$7	80%	90%	\$0.00	159,419
Electric	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	880	8	\$422	75%	70%	\$0.10	0.00
Electric	Grocery	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	730	15	\$765	62%	90%	\$0.14	0.00
Electric	Grocery	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	730	15	\$1,787	62%	90%	\$0.32	0.00
Electric	Grocery	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	369	8	\$548	45%	90%	\$0.30	0.00
Electric	Grocery	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	369	8	\$1,280	45%	90%	\$0.69	0.00
Electric	Grocery	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	362	8	\$100	5.0%	50%	\$0.06	0.00
Electric	Grocery	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	704	17	\$478	75%	50%	\$0.08	0.00
Electric	Grocery	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	304	8	\$51	25%	25%	\$0.03	189,671
Electric	Grocery	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	304	8	\$119	25%	25%	\$0.08	0.00
Electric	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	880	8	\$422	75%	70%	\$0.10	0.00
Electric	Grocery	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	730	15	\$765	62%	90%	\$0.14	0.00
Electric	Grocery	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	730	15	\$1,787	62%	90%	\$0.32	0.00
Electric	Grocery	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	369	8	\$548	45%	90%	\$0.30	0.00
Electric	Grocery	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	369	8	\$1,280	45%	90%	\$0.69	0.00
Electric	Grocery	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	362	8	\$100	5.0%	50%	\$0.06	0.00
Electric	Grocery	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	704	17	\$478	75%	50%	\$0.08	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	629	10	\$249	5.0%	75%	\$0.07	0.00
Electric	Grocery	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	629	10	\$582	5.0%	75%	\$0.16	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,760	8	\$3,868	5.0%	95%	\$0.21	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	3,760	8	\$3,868	5.0%	95%	\$0.21	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,743	8	\$3,868	5.0%	95%	\$0.13	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	5,743	8	\$3,868	5.0%	95%	\$0.13	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,820	8	\$2,901	5.0%	95%	\$0.21	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	2,820	8	\$2,901	5.0%	95%	\$0.21	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,307	8	\$2,901	5.0%	95%	\$0.13	0.00
Electric	Grocery	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	4,307	8	\$2,901	5.0%	95%	\$0.13	0.00
Electric	Grocery	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	3,226	6	\$1,197	85%	80%	\$0.06	0.00
Electric	Grocery	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs	Standard Case Lighting	Per Building	Existing	1,979	6	\$1,004	85%	80%	\$0.11	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,662	13	\$20,238	50%	N/A	\$0.63	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,662	13	\$20,238	50%	N/A	\$0.63	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,664	13	\$20,366	50%	N/A	\$0.63	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,664	13	\$20,366	50%	N/A	\$0.63	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,043	13	\$418	100%	N/A	\$0.09	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,043	13	\$418	100%	N/A	\$0.09	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,044	13	\$410	100%	N/A	\$0.09	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,044	13	\$410	100%	N/A	\$0.09	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,918	13	\$427	100%	N/A	\$0.00	6,531,475

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	1,919	13	\$437	100%	N/A	\$0.00	6,906,346
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,170	13	\$1,886	100%	N/A	\$0.14	0.00
Electric	Grocery	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	2,171	13	\$1,887	100%	N/A	\$0.14	0.00
Electric	Grocery	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,862	8	\$548	5.0%	90%	\$0.04	1,160,171
Electric	Grocery	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	2,862	8	\$1,280	5.0%	90%	\$0.09	0.00
Electric	Grocery	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,359	8	\$51	5.0%	25%	\$0.00	319,476
Electric	Grocery	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	2,359	8	\$119	5.0%	25%	\$0.01	289,340
Electric	Grocery	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	825	15	\$290	100%	N/A	\$0.06	0.00
Electric	Grocery	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	1,077	15	\$1,198	95%	N/A	\$0.14	0.00
Electric	Grocery	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	913	13	\$8,824	50%	N/A	\$1.34	0.00
Electric	Grocery	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	555	9	\$10	25%	N/A	\$-0.03	206,914
Electric	Grocery	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	555	9	\$10	25%	N/A	\$-0.03	217,693
Electric	Grocery	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	250	15	\$5,581	100%	N/A	\$2.77	0.00
Electric	Grocery	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	414	8	\$548	5.0%	90%	\$0.26	0.00
Electric	Grocery	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	414	8	\$1,280	5.0%	90%	\$0.62	0.00
Electric	Grocery	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	341	8	\$51	10%	25%	\$0.03	88,560
Electric	Grocery	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	341	8	\$119	10%	25%	\$0.07	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	260	11	\$101	95%	65%	\$0.06	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	260	11	\$101	95%	65%	\$0.06	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	607	11	\$236	95%	65%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	607	11	\$236	95%	65%	\$0.06	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	52	13	\$44	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	52	13	\$44	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	121	13	\$104	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	121	13	\$104	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	650	10	\$249	5.0%	75%	\$0.07	0.00
Electric	Grocery	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	650	10	\$582	5.0%	75%	\$0.15	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,044	8	\$3,868	5.0%	95%	\$0.25	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,044	8	\$3,868	5.0%	95%	\$0.25	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,650	8	\$3,868	5.0%	95%	\$0.17	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	4,650	8	\$3,868	5.0%	95%	\$0.17	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,283	8	\$2,901	5.0%	95%	\$0.25	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	2,283	8	\$2,901	5.0%	95%	\$0.25	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,487	8	\$2,901	5.0%	95%	\$0.17	0.00
Electric	Grocery	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	3,487	8	\$2,901	5.0%	95%	\$0.17	0.00
Electric	Grocery	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	1,993	6	\$486	85%	80%	\$0.02	1,534,471
Electric	Grocery	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	1,993	6	\$486	85%	80%	\$0.02	1,812,224
Electric	Grocery	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	899	6	\$350	85%	80%	\$0.08	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	52	13	\$44	95%	95%	\$0.12	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	52	13	\$44	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	121	13	\$104	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	121	13	\$104	95%	95%	\$0.12	0.00
Electric	Grocery	Lighting Interior Other	Lighting Package - High Efficiency	12% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	3,252	13	\$9,693	100%	N/A	\$0.42	0.00
Electric	Grocery	Lighting Interior Other	Lighting Package - High Efficiency	12% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	3,252	13	\$9,693	100%	N/A	\$0.42	0.00
Electric	Grocery	Lighting Interior Other	Lighting Package - High Efficiency	12% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	3,903	13	\$9,540	100%	N/A	\$0.35	0.00
Electric	Grocery	Lighting Interior Other	Lighting Package - High Efficiency	12% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	3,903	13	\$9,540	100%	N/A	\$0.35	0.00
Electric	Grocery	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,960	8	\$548	5.0%	90%	\$0.04	170,695
Electric	Grocery	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	2,960	8	\$1,280	5.0%	90%	\$0.09	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,227	4	\$15	85%	N/A	\$-0.02	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,159	4	\$25	85%	N/A	\$-0.02	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	2,698	1	\$4	100%	N/A	\$0.01	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	2,698	1	\$4	100%	N/A	\$0.01	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,313	1	\$7	100%	N/A	\$0.01	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	4,313	1	\$7	100%	N/A	\$0.01	0.00
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,251	12	\$402	85%	N/A	\$0.00	3,064,708
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	3,251	12	\$402	85%	N/A	\$0.00	3,064,708
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,199	12	\$644	85%	N/A	\$0.00	4,670,781

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Lighting Interior Screw Base	Lighting Interior Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	5,199	12	\$644	85%	N/A	\$0.00	4,670,781
Electric	Grocery	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	Existing	377	8	\$548	5.0%	90%	\$0.29	0.00
Electric	Grocery	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	Existing	377	8	\$1,280	5.0%	90%	\$0.68	0.00
Electric	Grocery	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	311	8	\$51	1.0%	25%	\$0.03	3,012
Electric	Grocery	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	311	8	\$119	1.0%	25%	\$0.08	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.38	10%	90%	\$0.04	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	2	7	\$0.38	10%	90%	\$0.04	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	4	7	\$1	10%	90%	\$0.05	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	4	7	\$1	10%	90%	\$0.05	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	13	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	30	10	\$0.00	95%	75%	\$0.00	253,384
Electric	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	30	10	\$0.00	95%	75%	\$0.00	282,164
Electric	Grocery	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	746	10	\$527	75%	85%	\$0.12	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	60	4	\$11	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	60	4	\$11	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	140	4	\$27	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	140	4	\$27	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.38	10%	90%	\$0.04	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	2	7	\$0.38	10%	90%	\$0.04	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	4	7	\$1	10%	90%	\$0.05	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	4	7	\$1	10%	90%	\$0.05	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	13	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	30	10	\$0.00	95%	75%	\$0.00	29,439

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	30	10	\$0.00	95%	75%	\$0.00	33,966
Electric	Grocery	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	New	746	10	\$527	75%	85%	\$0.12	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	60	4	\$11	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	60	4	\$11	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	140	4	\$27	60%	90%	\$0.07	0.00
Electric	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	140	4	\$27	60%	90%	\$0.07	0.00
Electric	Grocery	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	23	6	\$29	100%	N/A	\$0.31	0.00
Electric	Grocery	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	23	6	\$29	100%	N/A	\$0.31	7
Electric	Grocery	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	23	6	\$29	100%	N/A	\$0.31	11
Electric	Grocery	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	59	6	\$8	100%	N/A	\$0.04	4,599
Electric	Grocery	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	59	6	\$8	100%	N/A	\$0.04	8,051
Electric	Grocery	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	59	6	\$8	100%	N/A	\$0.04	0.00
Electric	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	3,782	8	\$324	90%	75%	\$0.02	24,220,745
Electric	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	3,782	8	\$324	90%	75%	\$0.02	26,658,257
Electric	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	6,275	15	\$1,524	100%	50%	\$0.03	30,956,677
Electric	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	6,275	15	\$1,524	100%	50%	\$0.03	34,072,076
Electric	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	4,336	15	\$469	95%	90%	\$0.01	36,575,449
Electric	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	4,336	15	\$469	95%	90%	\$0.01	40,256,306
Electric	Grocery	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	322	15	\$211	95%	90%	\$0.09	0.00
Electric	Grocery	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	Existing	4,245	10	\$3,521	95%	80%	\$0.14	0.00
Electric	Grocery	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	Existing	5,763	10	\$4,773	95%	80%	\$0.14	0.00
Electric	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	Per Building	Existing	11,634	13	\$1,720	60%	85%	\$0.02	54,736,894
Electric	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	Per Building	Existing	11,634	13	\$1,720	60%	85%	\$0.02	60,245,472
Electric	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	Existing	1,350	10	\$3,300	95%	70%	\$0.42	0.00
Electric	Grocery	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	624	8	\$61	50%	95%	\$0.02	2,925,253
Electric	Grocery	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	624	8	\$61	50%	95%	\$0.02	3,219,643
Electric	Grocery	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	387	15	\$349	35%	80%	\$0.12	0.00
Electric	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	Per Building	Existing	2,678	15	\$911	50%	90%	\$0.04	10,123,844

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	Per Building	Existing	2,678	15	\$911	50%	90%	\$0.04	11,142,681
Electric	Grocery	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	477	12	\$452	95%	80%	\$0.14	0.00
Electric	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	1,560	5	\$248	95%	65%	\$0.05	7,999,337
Electric	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	1,560	5	\$248	95%	65%	\$0.05	8,804,370
Electric	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	Existing	5,260	3	\$825	95%	90%	\$0.07	0.00
Electric	Grocery	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	375	12	\$-88.1904	95%	80%	\$-0.04	2,817,445
Electric	Grocery	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	375	12	\$-88.1904	95%	80%	\$-0.04	3,100,985
Electric	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-Ins	Per Building	Existing	683	4	\$493	95%	80%	\$0.26	0.00
Electric	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	633	15	\$703	75%	95%	\$0.15	0.00
Electric	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	3,782	8	\$324	90%	20%	\$0.02	769,221
Electric	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	3,782	8	\$324	90%	20%	\$0.02	897,802
Electric	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	5,009	15	\$1,217	100%	50%	\$0.03	2,767,061
Electric	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	5,009	15	\$1,217	100%	50%	\$0.03	3,244,015
Electric	Grocery	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	New	3,388	10	\$2,810	95%	80%	\$0.14	0.00
Electric	Grocery	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	New	4,600	10	\$3,810	95%	80%	\$0.14	0.00
Electric	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	New	1,077	10	\$3,300	95%	70%	\$0.52	0.00
Electric	Grocery	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	498	8	\$48	50%	95%	\$0.02	268,334
Electric	Grocery	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	498	8	\$48	50%	95%	\$0.02	313,188
Electric	Grocery	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	387	15	\$349	35%	80%	\$0.12	0.00
Electric	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	Per Building	New	2,678	15	\$911	50%	90%	\$0.04	1,271,893
Electric	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	Per Building	New	2,678	15	\$911	50%	90%	\$0.04	1,491,128
Electric	Grocery	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	477	12	\$452	95%	80%	\$0.14	0.00
Electric	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	1,560	5	\$248	95%	65%	\$0.05	1,028,295
Electric	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	1,560	5	\$248	95%	65%	\$0.05	1,200,182
Electric	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	New	2,099	3	\$255	80%	90%	\$0.06	0.00
Electric	Grocery	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	375	12	\$-88.1904	95%	80%	\$-0.04	323,761

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	375	12	\$-88,1904	95%	80%	\$-0.04	377,881
Electric	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	New	683	4	\$493	95%	80%	\$0.26	0.00
Electric	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	633	15	\$703	75%	95%	\$0.15	0.00
Electric	Grocery	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	30	20	\$82	100%	N/A	\$0.31	0.00
Electric	Grocery	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	34	20	\$111	100%	N/A	\$0.37	0.00
Electric	Grocery	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	26	20	\$6	100%	N/A	\$0.03	27,741
Electric	Grocery	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	26	20	\$6	100%	N/A	\$0.03	29,112
Electric	Grocery	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	8	20	\$3	100%	N/A	\$0.04	0.00
Electric	Grocery	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	208	20	\$22	8.8%	100%	\$0.01	140,038
Electric	Grocery	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	208	20	\$22	8.8%	100%	\$0.01	140,038
Electric	Grocery	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	212	20	\$21	8.8%	100%	\$0.01	159,123
Electric	Grocery	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	212	20	\$21	8.8%	100%	\$0.01	159,123
Electric	Grocery	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	30	20	\$82	100%	N/A	\$0.31	0.00
Electric	Grocery	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	34	20	\$111	100%	N/A	\$0.37	0.00
Electric	Grocery	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	26	20	\$6	100%	N/A	\$0.03	12,458
Electric	Grocery	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	26	20	\$6	100%	N/A	\$0.03	13,071
Electric	Grocery	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	8	20	\$3	100%	N/A	\$0.04	0.00
Electric	Grocery	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	225	15	\$1,353	80%	95%	\$0.78	0.00
Electric	Grocery	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	287	15	\$1,353	80%	95%	\$0.62	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	413	15	\$9,101	2.5%	65%	\$2.88	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	526	15	\$9,101	2.5%	65%	\$2.26	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	413	15	\$7,517	2.5%	65%	\$2.38	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	526	15	\$7,517	2.5%	65%	\$1.87	0.00
Electric	Grocery	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	101	12	\$5,450	10%	85%	\$8.06	0.00
Electric	Grocery	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	129	12	\$5,450	10%	85%	\$6.33	0.00

Table F.2. Commercial Building Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	225	40	\$39,179	2.0%	100%	\$15.41	0.00
Electric	Grocery	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	287	40	\$39,179	2.0%	100%	\$12.10	0.00
Electric	Grocery	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	112	12	\$76	10%	60%	\$0.10	7,033
Electric	Grocery	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	143	12	\$76	10%	60%	\$0.08	0.00
Electric	Grocery	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8	25	\$2,036	45%	65%	\$23.80	0.00
Electric	Grocery	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	11	25	\$2,036	45%	65%	\$18.69	0.00
Electric	Grocery	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.78	25	\$980	25%	85%	\$127.32	0.00
Electric	Grocery	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.99	25	\$980	25%	85%	\$100.00	0.00
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	210	9	\$49	100%	N/A	\$0.04	25,832
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	210	9	\$49	100%	N/A	\$0.04	25,832
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	268	9	\$49	100%	N/A	\$0.03	0.00
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	268	9	\$49	100%	N/A	\$0.03	0.00
Electric	Grocery	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	284	25	\$7	15%	90%	\$0.00	51,428
Electric	Grocery	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	362	25	\$7	15%	90%	\$0.00	0.00
Electric	Grocery	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	259	25	\$107	15%	25%	\$0.04	10,088
Electric	Grocery	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	330	25	\$107	15%	25%	\$0.03	0.00
Electric	Grocery	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	225	15	\$1,353	80%	95%	\$0.78	0.00
Electric	Grocery	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	287	15	\$1,353	80%	95%	\$0.62	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	413	15	\$7,280	2.5%	65%	\$2.30	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	526	15	\$7,280	2.5%	65%	\$1.81	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	413	15	\$6,013	2.5%	65%	\$1.90	0.00
Electric	Grocery	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	526	15	\$6,013	2.5%	65%	\$1.49	0.00
Electric	Grocery	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	101	12	\$5,450	10%	85%	\$8.06	0.00

Table F.2. Commercial Technical Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	129	12	\$5,450	10%	85%	\$6.33	0.00
Electric	Grocery	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	225	40	\$39,179	2.0%	100%	\$15.41	0.00
Electric	Grocery	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	287	40	\$39,179	2.0%	100%	\$12.10	0.00
Electric	Grocery	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.78	25	\$980	75%	85%	\$127.32	0.00
Electric	Grocery	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.99	25	\$980	75%	85%	\$100.00	0.00
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	210	9	\$49	100%	N/A	\$0.04	8.871
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	210	9	\$49	100%	N/A	\$0.04	8.871
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	268	9	\$49	100%	N/A	\$0.03	0.00
Electric	Grocery	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	268	9	\$49	100%	N/A	\$0.03	0.00
Electric	Grocery	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	284	25	\$7	80%	90%	\$0.00	27,262
Electric	Grocery	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	362	25	\$7	80%	90%	\$0.00	0.00
Electric	Grocery	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	4,237	15	\$7,520	2.5%	65%	\$0.23	0.00
Electric	Grocery	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	307	12	\$5,450	10%	85%	\$2.66	0.00
Electric	Grocery	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	682	12	\$76	10%	60%	\$0.02	0.00
Electric	Grocery	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	682	12	\$76	10%	60%	\$0.02	26,920
Electric	Grocery	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,342	25	\$2,036	45%	65%	\$0.15	0.00
Electric	Grocery	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	170	25	\$980	25%	85%	\$0.59	0.00
Electric	Grocery	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,641	25	\$3,635	15%	85%	\$0.23	0.00
Electric	Grocery	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	305	25	\$1,121	15%	95%	\$0.37	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	827	25	\$8,938	10%	45%	\$1.10	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	827	25	\$8,938	10%	45%	\$1.10	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,170	25	\$8,938	10%	45%	\$0.42	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,170	25	\$8,938	10%	45%	\$0.42	0.00
Electric	Grocery	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	4,237	15	\$5,156	2.5%	65%	\$0.16	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	307	12	\$5,450	10%	85%	\$2.66	0.00
Electric	Grocery	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	170	25	\$980	75%	85%	\$0.59	0.00
Electric	Grocery	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	305	25	\$1,121	15%	95%	\$0.37	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	827	25	\$934	95%	85%	\$0.12	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	827	25	\$934	95%	85%	\$0.12	0.00
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,170	25	\$934	95%	85%	\$0.04	134,582
Electric	Grocery	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	2,170	25	\$934	95%	85%	\$0.04	134,582
Electric	Grocery	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	23	9	\$3	100%	N/A	\$0.02	142,487
Electric	Grocery	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	23	9	\$3	100%	N/A	\$0.02	148,404
Electric	Grocery	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	23	9	\$3	100%	N/A	\$0.02	19,015
Electric	Grocery	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	23	9	\$3	100%	N/A	\$0.02	21,597
Electric	Grocery	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	2,949	15	\$11,757	1.0%	70%	\$0.52	0.00
Electric	Grocery	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,474	5	\$312	75%	75%	\$0.06	0.00
Electric	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	245	18	\$928	45%	85%	\$0.45	0.00
Electric	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,474	14	\$6,652	5.0%	95%	\$0.61	0.00
Electric	Grocery	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	442	12	\$5,450	10%	85%	\$1.85	0.00
Electric	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	983	12	\$76	10%	60%	\$0.01	124,076
Electric	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	983	12	\$76	10%	60%	\$0.01	167,737
Electric	Grocery	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,934	25	\$2,036	45%	65%	\$0.11	0.00
Electric	Grocery	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	245	25	\$980	25%	85%	\$0.41	0.00
Electric	Grocery	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	294	20	\$521	45%	60%	\$0.20	0.00
Electric	Grocery	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	294	20	\$1,217	45%	60%	\$0.46	0.00
Electric	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	176	20	\$91	45%	85%	\$0.06	0.00
Electric	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	176	20	\$213	45%	85%	\$0.14	0.00
Electric	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,364	25	\$3,635	15%	85%	\$0.16	0.00
Electric	Grocery	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	440	25	\$1,121	15%	95%	\$0.26	0.00
Electric	Grocery	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	3,126	25	\$8,938	10%	45%	\$0.29	0.00
Electric	Grocery	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,228	7	\$762	90%	95%	\$0.14	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	322	7	\$2,862	95%	95%	\$1.97	0.00
Electric	Grocery	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,474	5	\$312	25%	25%	\$0.06	0.00
Electric	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,474	14	\$6,652	5.0%	95%	\$0.61	0.00
Electric	Grocery	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	442	12	\$5,450	10%	85%	\$1.85	0.00
Electric	Grocery	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	245	25	\$980	75%	85%	\$0.41	0.00
Electric	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	176	20	\$91	45%	85%	\$0.06	0.00
Electric	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	176	20	\$213	45%	85%	\$0.14	0.00
Electric	Grocery	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	440	25	\$1,121	15%	95%	\$0.26	0.00
Electric	Grocery	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,191	25	\$934	95%	85%	\$0.08	0.00
Electric	Grocery	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	321	10	\$44	100%	N/A	\$0.02	1,056,785
Electric	Grocery	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	321	10	\$44	100%	N/A	\$0.02	1,066,372
Electric	Grocery	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	321	10	\$44	100%	N/A	\$0.02	192,832
Electric	Grocery	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	321	10	\$44	100%	N/A	\$0.02	218,527
Electric	Grocery	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	1,101	10	\$474	5.0%	90%	\$0.07	0.00
Electric	Grocery	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	1,652	15	\$11,757	1.0%	70%	\$0.93	0.00
Electric	Grocery	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	1,119	18	\$2,400	95%	65%	\$0.25	0.00
Electric	Grocery	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	56	15	\$25	95%	90%	\$0.06	0.00
Electric	Grocery	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	1,404	20	\$430	55%	65%	\$0.03	2,852,300
Electric	Grocery	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	1,404	20	\$430	55%	65%	\$0.03	2,855,591
Electric	Grocery	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	68	7	\$19	65%	25%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	1,101	10	\$474	5.0%	90%	\$0.07	0.00
Electric	Grocery	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	1,119	18	\$2,400	95%	65%	\$0.25	0.00
Electric	Grocery	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	56	15	\$25	95%	90%	\$0.06	0.00
Electric	Grocery	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	1,404	20	\$430	55%	45%	\$0.03	196,379
Electric	Grocery	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	1,404	20	\$430	55%	45%	\$0.03	230,651
Electric	Grocery	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	41	10	\$1,074	75%	95%	\$4.42	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	14	12	\$39	45%	35%	\$0.42	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	74	12	\$42	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	74	12	\$42	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	86	12	\$49	40%	95%	\$0.08	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	86	12	\$49	40%	95%	\$0.08	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	68	12	\$42	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	68	12	\$42	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	79	12	\$49	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	79	12	\$49	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	8	12	\$32	75%	75%	\$0.58	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	165	25	\$999	2.5%	95%	\$0.62	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	31	9	\$0.38	95%	75%	\$0.00	34,216

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	31	9	\$0.77	95%	75%	\$0.00	37,393
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	13	9	\$0.38	95%	50%	\$0.01	7,816
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	13	9	\$0.38	95%	50%	\$0.01	8,542
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	4	9	\$7	95%	25%	\$0.29	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	4	9	\$18	95%	25%	\$0.67	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	322	4	\$97	95%	75%	\$0.11	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	20	10	\$117	75%	95%	\$0.97	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	20	10	\$275	75%	95%	\$2.26	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	94	10	\$2,730	55%	95%	\$4.92	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	94	10	\$6,370	55%	95%	\$11.49	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	493	15	\$403	75%	N/A	\$0.14	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	487	15	\$240	75%	N/A	\$0.10	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	40	10	\$1,074	75%	95%	\$4.45	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	14	12	\$39	45%	35%	\$0.42	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	70	12	\$39	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	70	12	\$39	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	83	12	\$47	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	83	12	\$47	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	64	12	\$39	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	64	12	\$39	40%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	76	12	\$47	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	76	12	\$47	40%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	163	25	\$800	2.5%	95%	\$0.50	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	31	9	\$0.38	95%	75%	\$0.00	3,448
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	31	9	\$0.77	95%	75%	\$0.00	2,839
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	13	9	\$0.38	95%	50%	\$0.01	787
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	13	9	\$0.38	95%	50%	\$0.01	648
Electric	Grocery	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	322	4	\$97	95%	75%	\$0.11	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	20	10	\$117	75%	95%	\$0.98	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	20	10	\$275	75%	95%	\$2.28	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	93	10	\$2,730	55%	95%	\$4.96	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	93	10	\$6,370	55%	95%	\$11.58	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	493	15	\$403	75%	N/A	\$0.14	0.00
Electric	Grocery	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	487	15	\$240	75%	N/A	\$0.10	0.00
Electric	Grocery	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	43	10	\$1,074	50%	95%	\$4.23	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	14	12	\$39	75%	35%	\$0.42	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	74	12	\$42	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	74	12	\$42	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	86	12	\$49	50%	95%	\$0.08	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	86	12	\$49	50%	95%	\$0.08	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	68	12	\$42	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	68	12	\$42	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	79	12	\$49	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	79	12	\$49	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	8	12	\$32	75%	75%	\$0.56	0.00
Electric	Grocery	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	172	25	\$999	2.5%	95%	\$0.59	0.00
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	33	9	\$0.38	95%	75%	\$0.00	81,020
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	33	9	\$0.77	95%	75%	\$0.00	88,548
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	13	9	\$0.38	95%	50%	\$0.01	18,507
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	13	9	\$0.38	95%	50%	\$0.01	20,227
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	5	9	\$7	95%	25%	\$0.27	0.00
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	5	9	\$18	95%	25%	\$0.64	0.00
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	322	4	\$97	95%	75%	\$0.11	0.00
Electric	Grocery	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	21	10	\$117	75%	95%	\$0.93	0.00
Electric	Grocery	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	21	10	\$275	75%	95%	\$2.16	0.00
Electric	Grocery	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	98	10	\$2,730	55%	95%	\$4.71	0.00
Electric	Grocery	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	98	10	\$6,370	55%	95%	\$10.99	0.00
Electric	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	456	15	\$2,069	75%	N/A	\$0.66	0.00
Electric	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	26	15	\$90	100%	N/A	\$0.44	0.00

Table F.2. Commercial Water Heating Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	41	10	\$1,074	50%	95%	\$4.36	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	14	12	\$39	75%	35%	\$0.42	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	70	12	\$39	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	70	12	\$39	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	83	12	\$47	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	83	12	\$47	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	64	12	\$39	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	64	12	\$39	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	76	12	\$47	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	76	12	\$47	50%	95%	\$0.09	0.00
Electric	Grocery	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	167	25	\$800	2.5%	95%	\$0.49	0.00
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	32	9	\$0.38	95%	75%	\$0.00	10,338
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	32	9	\$0.77	95%	75%	\$0.00	8,625
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	13	9	\$0.38	95%	50%	\$0.01	2,361
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	13	9	\$0.38	95%	50%	\$0.01	1,970
Electric	Grocery	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	322	4	\$97	95%	75%	\$0.11	0.00
Electric	Grocery	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	20	10	\$117	75%	95%	\$0.96	0.00
Electric	Grocery	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	20	10	\$275	75%	95%	\$2.23	0.00
Electric	Grocery	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	95	10	\$2,730	55%	95%	\$4.86	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Grocery	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	95	10	\$6,370	55%	95%	\$11.33	0.00
Electric	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	456	15	\$2,069	75%	N/A	\$0.66	21
Electric	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	456	15	\$2,069	75%	N/A	\$0.66	47
Electric	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	26	15	\$90	100%	N/A	\$0.44	-4.092672
Electric	Grocery	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	26	15	\$90	100%	N/A	\$0.44	-36.361884
Electric	Health	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	2,065	4	\$236	100%	N/A	\$0.04	462,719
Electric	Health	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	2,065	4	\$236	100%	N/A	\$0.04	500,113
Electric	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	3,187	4	\$236	95%	65%	\$0.03	6,053,205
Electric	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	3,187	4	\$236	95%	65%	\$0.03	8,007,148
Electric	Health	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	2,065	4	\$236	100%	N/A	\$0.04	154,858
Electric	Health	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	2,065	4	\$236	100%	N/A	\$0.04	164,606
Electric	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	3,187	4	\$236	95%	65%	\$0.03	849,697
Electric	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	3,187	4	\$236	95%	65%	\$0.03	874,819
Electric	Health	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	Existing	69	12	\$39	7.0%	60%	\$0.09	0.00
Electric	Health	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 Inch Width Standard Deep Fat Fryers	Per Building	Existing	3	12	\$7	7.0%	70%	\$0.34	0.00
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	39	12	\$9	7.0%	55%	\$0.04	2,970
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	39	12	\$9	7.0%	55%	\$0.04	2,970
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	39	12	\$9	7.0%	55%	\$0.04	1,565
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	Existing	39	12	\$9	7.0%	55%	\$0.04	1,565
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	Existing	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	195	12	\$109	11%	75%	\$0.08	0.00
Electric	Health	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	Existing	195	12	\$109	11%	75%	\$0.08	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Technical Potential (kWh)
Electric	Health	Cooking	Convection Oven	High Efficiency Convection Oven	Standard Oven	Per Building	New	69	12	\$39	7.0%	60%	\$0.09	0.00
Electric	Health	Cooking	Fryers	CEE Efficient Deep Fat Fryers - 15 inch width Deep Fryer	15 inch Width Standard Deep Fat Fryers	Per Building	New	3	12	\$7	7.0%	70%	\$0.34	0.00
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	39	12	\$9	7.0%	55%	\$0.04	308
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	39	12	\$9	7.0%	55%	\$0.04	308
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	39	12	\$9	7.0%	55%	\$0.04	209
Electric	Health	Cooking	Griddle	ENERGY STAR Griddle	Non ENERGY STAR Griddle	Per Building	New	39	12	\$9	7.0%	55%	\$0.04	209
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	Non ENERGY STAR Hot Food Holding Cabinet	Per Building	New	112	12	\$72	15%	85%	\$0.10	0.00
Electric	Health	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	195	12	\$109	11%	75%	\$0.08	0.00
Electric	Health	Cooking	Steam Cooker	ENERGY STAR Steam Cooker	Non ENERGY STAR Steam Cooker	Per Building	New	195	12	\$109	11%	75%	\$0.08	0.00
Electric	Health	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,536	15	\$877	5.0%	95%	\$0.07	6,515
Electric	Health	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,536	15	\$877	5.0%	95%	\$0.07	62,103
Electric	Health	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	4,775	10	\$18,395	25%	95%	\$0.65	0.00
Electric	Health	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	3,158	10	\$15,937	75%	95%	\$0.86	0.00
Electric	Health	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	3,158	15	\$42,708	45%	90%	\$1.77	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	119	15	\$275	90%	90%	\$0.30	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	119	15	\$275	90%	90%	\$0.30	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	199	15	\$460	90%	90%	\$0.30	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	199	15	\$460	90%	90%	\$0.30	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	71	15	\$128	75%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	71	15	\$128	75%	90%	\$0.24	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	119	15	\$215	75%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	119	15	\$215	75%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.52 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	12,685	20	\$7,580	100%	N/A	\$0.07	367,103
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.52 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	12,685	20	\$7,580	100%	N/A	\$0.07	4,832,149
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	High Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	3,964	20	\$1,263	100%	N/A	\$0.04	0.00
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	Premium Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	Existing	7,928	20	\$4,633	100%	N/A	\$0.07	0.00
Electric	Health	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	18,948	15	\$71,102	15%	70%	\$0.49	0.00
Electric	Health	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	6,316	15	\$6,366	15%	95%	\$0.13	0.00
Electric	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	5,052	7	\$2,273	10%	95%	\$0.10	0.00
Electric	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	8,842	15	\$203	65%	35%	\$0.00	278,464
Electric	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	8,842	15	\$203	65%	35%	\$0.00	2,654,367
Electric	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	2,526	13	\$1,646	75%	75%	\$0.09	0.00
Electric	Health	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	9,474	5	\$1,461	75%	75%	\$0.05	578,629
Electric	Health	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	9,474	5	\$1,461	75%	75%	\$0.05	5,515,585
Electric	Health	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	2,842	12	\$5,449	2.5%	85%	\$0.29	0.00
Electric	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	6,316	40	\$84,281	2.0%	100%	\$2.59	0.00
Electric	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,158	12	\$605	10%	60%	\$0.03	17,110
Electric	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,158	12	\$605	10%	60%	\$0.03	162,398
Electric	Health	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	102	25	\$9,580	45%	65%	\$9.52	0.00
Electric	Health	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	21	25	\$4,607	25%	85%	\$21.39	0.00
Electric	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	7,895	7	\$4,609	90%	95%	\$0.13	0.00
Electric	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	7,895	7	\$4,609	90%	95%	\$0.13	670,607
Electric	Health	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	6,316	3	\$2	95%	20%	\$0.00	172,268
Electric	Health	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	6,316	3	\$2	95%	20%	\$0.00	1,642,091

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	2,996	10	\$5,346	35%	70%	\$0.30	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	2,996	10	\$5,346	35%	70%	\$0.30	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	4,457	10	\$5,346	35%	70%	\$0.20	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	4,457	10	\$5,346	35%	70%	\$0.20	0.00
Electric	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	7,969	25	\$58	15%	90%	\$0.00	129,222
Electric	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	7,969	25	\$58	15%	90%	\$0.00	1,231,769
Electric	Health	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	7,268	25	\$849	15%	25%	\$0.01	24,540
Electric	Health	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	7,268	25	\$849	15%	25%	\$0.01	234,629
Electric	Health	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	4,052	10	\$16,554	25%	95%	\$0.69	0.00
Electric	Health	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	2,680	10	\$15,937	0.0%	0%	\$1.01	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	71	15	\$128	95%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	71	15	\$128	95%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	119	15	\$215	95%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	119	15	\$215	95%	90%	\$0.24	0.00
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.52 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	12,685	20	\$6,824	100%	N/A	\$0.06	142,720
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	Advanced Efficiency - 0.52 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	12,685	20	\$6,824	100%	N/A	\$0.06	1,650,536
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	High Efficiency - 0.63 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	3,964	20	\$1,139	100%	N/A	\$0.03	0.00
Electric	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	Premium Efficiency - 0.58 kW/ton (full load)	Standard Efficiency - 0.68 kW/ton (full load)	Per Building	New	7,928	20	\$4,170	100%	N/A	\$0.06	0.00
Electric	Health	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	1,758	7	\$17,307	95%	95%	\$2.18	0.00
Electric	Health	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	5,361	15	\$6,366	15%	95%	\$0.16	0.00
Electric	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	4,288	7	\$2,046	10%	95%	\$0.11	0.00
Electric	Health	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	8,041	5	\$1,461	25%	25%	\$0.05	5,992
Electric	Health	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	8,041	5	\$1,461	25%	25%	\$0.05	71,883
Electric	Health	Cooling Chillers	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	2,412	12	\$5,449	2.5%	85%	\$0.34	0.00
Electric	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	5,361	40	\$84,281	2.0%	100%	\$3.05	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	18	25	\$4,607	75%	85%	\$25.20	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	2,996	10	\$5,346	0.0%	0%	\$0.30	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	2,996	10	\$5,346	0.0%	0%	\$0.30	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	4,457	10	\$5,346	0.0%	0%	\$0.20	0.00
Electric	Health	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	4,457	10	\$5,346	0.0%	0%	\$0.20	0.00
Electric	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	6,764	25	\$58	80%	90%	\$0.00	63,582
Electric	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	6,764	25	\$58	80%	90%	\$0.00	697,778
Electric	Health	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	1,900	15	\$877	5.0%	95%	\$0.06	76,706
Electric	Health	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	2,272	15	\$877	5.0%	95%	\$0.05	113,721
Electric	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	23,427	15	\$71,102	15%	70%	\$0.40	0.00
Electric	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	28,022	15	\$71,102	15%	70%	\$0.33	0.00
Electric	Health	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	7,809	15	\$6,366	15%	95%	\$0.11	0.00
Electric	Health	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	9,340	15	\$6,366	15%	95%	\$0.09	0.00
Electric	Health	Cooling Dx Evap	DX Package 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	3,760	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Health	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	7,207	15	\$1,861	100%	N/A	\$0.03	587,882
Electric	Health	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	7,207	15	\$1,861	100%	N/A	\$0.03	927,700
Electric	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	11,713	10	\$13,263	10%	30%	\$0.19	0.00
Electric	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	14,011	10	\$13,263	10%	30%	\$0.16	0.00
Electric	Health	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	11,713	5	\$1,461	75%	75%	\$0.04	6,812,533
Electric	Health	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	14,011	5	\$1,461	75%	75%	\$0.03	10,099,873
Electric	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	1,952	18	\$5,613	45%	85%	\$0.34	0.00
Electric	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	2,335	18	\$5,613	45%	85%	\$0.28	0.00
Electric	Health	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	48,435	15	-\$39992.851	35%	N/A	-\$0.14	10,114,761

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtu/h - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	Existing	48,435	15	\$-39992.851	35%	N/A	\$-0.14	12,062,888
Electric	Health	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	3,514	12	\$5,449	2.5%	85%	\$0.23	0.00
Electric	Health	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	4,203	12	\$5,449	2.5%	85%	\$0.19	0.00
Electric	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	7,809	40	\$84,281	2.0%	100%	\$2.09	0.00
Electric	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	9,340	40	\$84,281	2.0%	100%	\$1.75	0.00
Electric	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	3,904	12	\$605	10%	60%	\$0.02	202,223
Electric	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	4,670	12	\$605	10%	60%	\$0.02	299,438
Electric	Health	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	126	25	\$9,580	45%	65%	\$7.70	0.00
Electric	Health	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	151	25	\$9,580	45%	65%	\$6.44	0.00
Electric	Health	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	27	25	\$4,607	25%	85%	\$17.30	0.00
Electric	Health	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	32	25	\$4,607	25%	85%	\$14.46	0.00
Electric	Health	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,342	20	\$694	45%	60%	\$0.03	544,366
Electric	Health	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,802	20	\$1,167	45%	60%	\$0.05	732,146
Electric	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	1,405	20	\$123	45%	85%	\$0.01	467,321
Electric	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	1,681	20	\$203	45%	85%	\$0.01	685,150
Electric	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	9,761	7	\$4,609	90%	95%	\$0.10	0.00
Electric	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	11,676	7	\$4,609	90%	95%	\$0.09	11,610,510
Electric	Health	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-up / Diagnostics	Per Building	Existing	7,809	5	\$3,742	95%	50%	\$0.14	0.00
Electric	Health	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-up / Diagnostics	Per Building	Existing	9,340	5	\$3,742	95%	50%	\$0.12	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	2,996	10	\$5,346	35%	70%	\$0.30	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	2,996	10	\$5,346	35%	70%	\$0.30	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	4,457	10	\$5,346	35%	70%	\$0.20	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	4,457	10	\$5,346	35%	70%	\$0.20	0.00
Electric	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	9,852	25	\$58	15%	90%	\$0.00	1,495,276
Electric	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	11,785	25	\$58	15%	90%	\$0.00	2,198,855
Electric	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	8,986	25	\$849	15%	25%	\$0.01	294,192
Electric	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	10,749	25	\$849	15%	25%	\$0.01	432,620

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	2,391	7	\$17,307	95%	95%	\$1.60	0.00
Electric	Health	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	2,828	7	\$17,307	95%	95%	\$1.36	0.00
Electric	Health	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	7,289	15	\$6,366	15%	95%	\$0.11	0.00
Electric	Health	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	8,623	15	\$6,366	15%	95%	\$0.10	0.00
Electric	Health	Cooling Dx Evap	DX Package 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.5 EER	Standard Efficiency - 11.0 EER	Per Building	New	3,760	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Health	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	7,207	15	\$1,487	100%	N/A	\$0.03	216,363
Electric	Health	Cooling Dx Evap	DX Package 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 12.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	7,207	15	\$1,487	100%	N/A	\$0.03	329,118
Electric	Health	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	10,934	5	\$1,461	25%	25%	\$0.04	88,457
Electric	Health	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	12,934	5	\$1,461	25%	25%	\$0.03	101,264
Electric	Health	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	48,435	15	-\$29879.448	35%	N/A	-\$0.11	2,414,199
Electric	Health	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 11.0 EER	Per Building	New	48,435	15	-\$29879.448	35%	N/A	-\$0.11	2,844,422
Electric	Health	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	3,280	12	\$5,449	2.5%	85%	\$0.25	0.00
Electric	Health	Cooling Dx Evap	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	3,880	12	\$5,449	2.5%	85%	\$0.21	0.00
Electric	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	7,289	40	\$84,281	2.0%	100%	\$2.24	0.00
Electric	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	8,623	40	\$84,281	2.0%	100%	\$1.90	0.00
Electric	Health	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	25	25	\$4,607	75%	85%	\$18.53	0.00
Electric	Health	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	29	25	\$4,607	75%	85%	\$15.67	0.00
Electric	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	1,312	20	\$123	45%	85%	\$0.01	47,064
Electric	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	1,552	20	\$203	45%	85%	\$0.01	58,895
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	2,996	10	\$5,346	0.0%	0%	\$0.30	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	2,996	10	\$5,346	0.0%	0%	\$0.30	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	4,457	10	\$5,346	0.0%	0%	\$0.20	0.00
Electric	Health	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	4,457	10	\$5,346	0.0%	0%	\$0.20	0.00
Electric	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	9,197	25	\$58	80%	90%	\$0.00	864,611

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	10,880	25	\$58	80%	90%	\$0.00	1,081,958
Electric	Health	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	82	6	\$2	100%	N/A	\$0.01	216,753
Electric	Health	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	82	6	\$2	100%	N/A	\$0.01	269,733
Electric	Health	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	82	6	\$2	100%	N/A	\$0.01	38,567
Electric	Health	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	82	6	\$2	100%	N/A	\$0.01	40,248
Electric	Health	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	279	4	\$315	100%	N/A	\$0.40	0.00
Electric	Health	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	279	4	\$315	100%	N/A	\$0.40	30
Electric	Health	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	279	4	\$315	100%	N/A	\$0.40	34
Electric	Health	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	10	20	\$2	100%	N/A	\$0.02	0.00
Electric	Health	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	29	20	\$2	100%	N/A	\$0.01	33,021
Electric	Health	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	29	20	\$2	100%	N/A	\$0.01	-491.982624
Electric	Health	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	205	20	\$28	8.8%	100%	\$0.02	84,048
Electric	Health	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	205	20	\$28	8.8%	100%	\$0.02	84,048
Electric	Health	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	242	20	\$30	8.8%	100%	\$0.01	75,011
Electric	Health	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	242	20	\$30	8.8%	100%	\$0.01	75,011
Electric	Health	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	10	20	\$2	100%	N/A	\$0.02	0.00
Electric	Health	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	29	20	\$2	100%	N/A	\$0.01	11,458
Electric	Health	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	29	20	\$2	100%	N/A	\$0.01	-63.881424
Electric	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.0 EER, 3.3 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	Existing	3,351	15	\$73,320	100%	N/A	\$18.47	0.00
Electric	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	Existing	7,194	15	\$7,608	100%	N/A	\$0.14	0.00
Electric	Health	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	2,654	15	\$877	5.0%	95%	\$0.04	0.00
Electric	Health	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	2,654	15	\$877	5.0%	95%	\$0.04	51,017
Electric	Health	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	29,319	15	\$71,102	15%	70%	\$0.32	0.00
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	2,067	15	\$6,366	15%	95%	\$0.40	0.00
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	2,067	15	\$6,366	15%	95%	\$0.40	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,938	15	\$6,366	15%	95%	\$0.21	0.00
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	3,938	15	\$6,366	15%	95%	\$0.21	0.00
Electric	Health	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	14,659	5	\$1,461	75%	75%	\$0.03	0.00
Electric	Health	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	14,659	5	\$1,461	75%	75%	\$0.03	4,064,659
Electric	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	2,443	18	\$5,613	45%	85%	\$0.27	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	8,752	14	\$40,229	5.0%	95%	\$0.63	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	8,752	14	\$40,229	5.0%	95%	\$0.63	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	11,558	14	\$40,229	5.0%	95%	\$0.47	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	11,558	14	\$40,229	5.0%	95%	\$0.47	0.00
Electric	Health	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	4,397	12	\$5,449	2.5%	85%	\$0.19	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,067	40	\$84,281	2.0%	100%	\$7.91	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	2,067	40	\$84,281	2.0%	100%	\$7.91	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,938	40	\$84,281	2.0%	100%	\$4.15	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	3,938	40	\$84,281	2.0%	100%	\$4.15	0.00
Electric	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 135 to 240 kBtu/h - Advanced Efficiency	Advanced Efficiency - 16.2 EER, 4.0 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	Existing	31,605	30	\$71,183	5.0%	N/A	\$1.39	0.00
Electric	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	7,329	12	\$605	10%	60%	\$0.01	0.00
Electric	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	7,329	12	\$605	10%	60%	\$0.01	181,034
Electric	Health	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,814	25	\$9,580	45%	65%	\$0.14	642,895
Electric	Health	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	6,814	25	\$9,580	45%	65%	\$0.14	642,895
Electric	Health	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8,949	25	\$9,580	45%	65%	\$0.11	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	8,949	25	\$9,580	45%	65%	\$0.11	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1,459	25	\$4,607	25%	85%	\$0.32	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1,459	25	\$4,607	25%	85%	\$0.32	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1,916	25	\$4,607	25%	85%	\$0.24	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	1,916	25	\$4,607	25%	85%	\$0.24	0.00

Table F.2. Commercial ⁷ tric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,931	20	\$694	45%	60%	\$0.03	0.00
Electric	Health	Heat Pump	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,931	20	\$1,167	45%	60%	\$0.04	294,151
Electric	Health	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	1,759	20	\$123	45%	85%	\$0.01	0.00
Electric	Health	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	1,759	20	\$203	45%	85%	\$0.01	275,736
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	15,500	25	\$17,099	15%	85%	\$0.11	728,405
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	15,500	25	\$17,099	15%	85%	\$0.11	728,405
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	21,745	25	\$17,099	15%	85%	\$0.08	0.00
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	21,745	25	\$17,099	15%	85%	\$0.08	0.00
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	3,021	25	\$5,276	15%	95%	\$0.18	136,028
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	3,021	25	\$5,276	15%	95%	\$0.18	136,028
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	4,228	25	\$5,276	15%	95%	\$0.13	0.00
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	4,228	25	\$5,276	15%	95%	\$0.13	0.00
Electric	Health	Heat Pump	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	15,586	25	\$42,039	10%	45%	\$0.27	0.00
Electric	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	12,216	7	\$4,609	90%	95%	\$0.08	0.00
Electric	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	12,216	7	\$4,609	90%	95%	\$0.08	4,570,373
Electric	Health	Heat Pump	Tune-up - Heat Pump Maintenance	Heat Pump Maintenance (Tune-up)	Unmaintained Heat Pump	Per Building	Existing	9,773	3	\$3,742	95%	50%	\$0.17	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	633	10	\$5,346	35%	70%	\$1.43	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	633	10	\$5,346	35%	70%	\$1.43	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	1,796	10	\$5,346	35%	70%	\$0.51	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	Existing	1,796	10	\$5,346	35%	70%	\$0.51	0.00
Electric	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	2,496	25	\$58	15%	90%	\$0.00	0.00
Electric	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	2,496	25	\$58	15%	90%	\$0.00	176,240
Electric	Health	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	4,060	25	\$849	15%	25%	\$0.02	0.00
Electric	Health	Heat Pump	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	4,060	25	\$849	15%	25%	\$0.02	56,737
Electric	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - High Efficiency	High Efficiency - 11.0 EER, 3.3 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	3,351	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	7,194	15	\$6,085	100%	N/A	\$0.11	136
Electric	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtuh - Premium Efficiency	Premium Efficiency - 11.5 EER, 3.4 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	7,194	15	\$6,085	100%	N/A	\$0.11	0.00
Electric	Health	Heat Pump	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	3,025	7	\$17,307	95%	95%	\$1.27	0.00
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,951	15	\$6,366	15%	95%	\$0.43	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	1,951	15	\$6,366	15%	95%	\$0.43	0.00
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	3,717	15	\$6,366	15%	95%	\$0.22	0.00
Electric	Health	Heat Pump	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	3,717	15	\$6,366	15%	95%	\$0.22	0.00
Electric	Health	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	13.837	5	\$1,461	25%	25%	\$0.03	0.00
Electric	Health	Heat Pump	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	13.837	5	\$1,461	25%	25%	\$0.03	45,318
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	8,261	14	\$40,229	5.0%	95%	\$0.66	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	8,261	14	\$40,229	5.0%	95%	\$0.66	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	10,910	14	\$40,229	5.0%	95%	\$0.50	0.00
Electric	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	10,910	14	\$40,229	5.0%	95%	\$0.50	0.00
Electric	Health	Heat Pump	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	4,151	12	\$5,449	2.5%	85%	\$0.20	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,951	40	\$84,281	2.0%	100%	\$8.38	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	1,951	40	\$84,281	2.0%	100%	\$8.38	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	3,717	40	\$84,281	2.0%	100%	\$4.40	0.00
Electric	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	3,717	40	\$84,281	2.0%	100%	\$4.40	0.00
Electric	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 135 to 240 kBtuh - Advanced Efficiency	Advanced Efficiency - 16.2 EER 4.0 COP	Standard Efficiency - 10.6 EER, 3.2 COP	Per Building	New	31,605	30	\$42,328	5.0%	N/A	\$0.71	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1,377	25	\$4,607	75%	85%	\$0.34	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1,377	25	\$4,607	75%	85%	\$0.34	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1,809	25	\$4,607	75%	85%	\$0.26	0.00
Electric	Health	Heat Pump	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	1,809	25	\$4,607	75%	85%	\$0.26	0.00
Electric	Health	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	1,660	20	\$123	45%	85%	\$0.01	0.00
Electric	Health	Heat Pump	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	1,660	20	\$203	45%	85%	\$0.01	26,357
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	2,852	25	\$5,276	15%	95%	\$0.19	16,394
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	2,852	25	\$5,276	15%	95%	\$0.19	16,394
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	3,991	25	\$5,276	15%	95%	\$0.13	0.00
Electric	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	3,991	25	\$5,276	15%	95%	\$0.13	0.00
Electric	Health	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,360	25	\$4,394	95%	85%	\$0.33	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Heat Pump	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,360	25	\$4,394	95%	85%	\$0.33	44,863
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	New	633	10	\$5,346	0.0%	0%	\$1.43	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	New	633	10	\$5,346	0.0%	0%	\$1.43	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	New	1,796	10	\$5,346	0.0%	0%	\$0.51	0.00
Electric	Health	Heat Pump	Window Film	Window Film	No Film	Per Building	New	1,796	10	\$5,346	0.0%	0%	\$0.51	0.00
Electric	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	2,356	25	\$58	80%	90%	\$0.00	0.00
Electric	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	2,356	25	\$58	80%	90%	\$0.00	90,806
Electric	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	Existing	2,939	8	\$916	75%	70%	\$0.06	0.00
Electric	Health	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	2,441	15	\$563	62%	90%	\$0.03	5,161,330
Electric	Health	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	Existing	2,441	15	\$944	62%	90%	\$0.05	0.00
Electric	Health	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,092	8	\$729	90%	90%	\$0.13	0.00
Electric	Health	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	1,092	8	\$1,225	90%	90%	\$0.22	0.00
Electric	Health	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	Existing	2,190	8	\$610	5.0%	50%	\$0.06	0.00
Electric	Health	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	Existing	4,261	17	\$2,895	75%	50%	\$0.08	0.00
Electric	Health	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	1,017	8	\$65	25%	25%	\$0.01	240,877
Electric	Health	Lighting Exterior	Time Clock	Time Clock	No Controls	Per Building	Existing	1,017	8	\$109	25%	25%	\$0.02	311,261
Electric	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	Per Building	New	2,939	8	\$916	75%	70%	\$0.06	0.00
Electric	Health	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	2,441	15	\$563	62%	90%	\$0.03	678,031
Electric	Health	Lighting Exterior	Exterior Building Lighting	20% savings	Normal Lighting	Per Building	New	2,441	15	\$944	62%	90%	\$0.05	0.00
Electric	Health	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,092	8	\$729	90%	90%	\$0.13	0.00
Electric	Health	Lighting Exterior	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	New	1,092	8	\$1,225	90%	90%	\$0.22	0.00
Electric	Health	Lighting Exterior	Parking - Covered Lighting	Covered Parking Lighting	Normal Lighting	Per Building	New	2,190	8	\$610	5.0%	50%	\$0.06	0.00
Electric	Health	Lighting Exterior	Parking - Surface Lighting	Surface Parking Lighting	Normal Lighting	Per Building	New	4,261	17	\$2,895	75%	50%	\$0.08	0.00
Electric	Health	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	2,442	10	\$332	25%	75%	\$0.02	1,511,215
Electric	Health	Lighting Interior Fluorescent	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	Existing	2,442	10	\$558	25%	75%	\$0.04	1,925,748
Electric	Health	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	14,920	8	\$10,789	15%	50%	\$0.14	0.00
Electric	Health	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	14,920	8	\$10,789	15%	50%	\$0.14	0.00
Electric	Health	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	19,309	8	\$10,789	15%	50%	\$0.11	0.00
Electric	Health	Lighting Interior Fluorescent	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	19,309	8	\$10,789	15%	50%	\$0.11	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	11,190	8	\$8,092	15%	50%	\$0.14	0.00
Electric	Health	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	11,190	8	\$8,092	15%	50%	\$0.14	0.00
Electric	Health	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	14,482	8	\$8,092	15%	50%	\$0.11	0.00
Electric	Health	Lighting Interior Fluorescent	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	Existing	14,482	8	\$8,092	15%	50%	\$0.11	0.00
Electric	Health	Lighting Interior Fluorescent	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	Existing	321	6	\$119	15%	80%	\$0.06	0.00
Electric	Health	Lighting Interior Fluorescent	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	Existing	197	6	\$100	10%	80%	\$0.12	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	19,042	13	\$15,609	50%	N/A	\$0.14	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	19,042	13	\$15,609	50%	N/A	\$0.14	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	19,230	13	\$13,900	50%	N/A	\$0.12	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T5 - Above Standard	Above Standard Fluorescent T5 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	19,230	13	\$13,900	50%	N/A	\$0.12	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,263	13	\$5,049	100%	N/A	\$0.19	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,263	13	\$5,049	100%	N/A	\$0.19	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,305	13	\$5,243	100%	N/A	\$0.20	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 - Above Standard	Above Standard Fluorescent T8 Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	4,305	13	\$5,243	100%	N/A	\$0.20	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	7,836	13	\$13,493	100%	N/A	\$0.31	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	7,836	13	\$13,493	100%	N/A	\$0.31	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,951	13	\$13,813	100%	N/A	\$0.28	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 High Performance - Above Standard	Above Standard Fluorescent T8 High Performance Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,951	13	\$13,813	100%	N/A	\$0.28	0.00
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	7,913	13	\$1,464	100%	N/A	\$0.04	-2091792.5107

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	7,913	13	\$1,464	100%	N/A	\$0.04	-2091792.5107
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,864	13	\$1,464	100%	N/A	\$0.03	-1216934.9829
Electric	Health	Lighting Interior Fluorescent	Lighting Interior - Fluorescent T8 Reduced Wattage - Above Standard	Above Standard Fluorescent T8 Reduced Wattage Interior Lighting	Standard Fluorescent EISA T12 Interior Lighting	Per Building	Existing	8,864	13	\$1,464	100%	N/A	\$0.03	-1216934.9829
Electric	Health	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	9,831	8	\$729	75%	90%	\$0.01	23,155,740
Electric	Health	Lighting Interior Fluorescent	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	9,831	8	\$1,225	75%	90%	\$0.02	29,507,456
Electric	Health	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	9,159	8	\$65	5.0%	25%	\$0.00	480,540
Electric	Health	Lighting Interior Fluorescent	Time Clock	Time Clock	No Controls	Per Building	Existing	9,159	8	\$109	5.0%	25%	\$0.00	612,354
Electric	Health	Lighting Interior Hid	Lighting Interior - Efficient Metal Halide - Above Standard	Above Standard Efficient Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	496	15	\$278	100%	N/A	\$0.09	0.00
Electric	Health	Lighting Interior Hid	Lighting Interior - High Bay Fluorescent High Output - Above Standard	Above Standard High Bay Fluorescent High Output Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	649	15	\$928	95%	N/A	\$0.18	0.00
Electric	Health	Lighting Interior Hid	Lighting Interior - High Bay LED - Above Standard	Above Standard High Bay LED Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	549	16	\$6,380	50%	N/A	\$1.42	0.00
Electric	Health	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	334	11	\$77	25%	N/A	\$0.01	45,352
Electric	Health	Lighting Interior Hid	Lighting Interior - Induction - Above Standard	Above Standard Induction Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	334	11	\$77	25%	N/A	\$0.01	56,525
Electric	Health	Lighting Interior Hid	Lighting Interior - Metal Halide - Above Standard	Above Standard Metal Halide Interior Lighting	Standard High Pressure Sodium Interior Lighting	Per Building	Existing	150	15	\$4,062	100%	N/A	\$3.39	0.00
Electric	Health	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	230	8	\$729	75%	90%	\$0.63	0.00
Electric	Health	Lighting Interior Hid	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor	Per Building	Existing	230	8	\$1,225	75%	90%	\$1.07	0.00
Electric	Health	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	214	8	\$65	10%	25%	\$0.06	0.00
Electric	Health	Lighting Interior Hid	Time Clock	Time Clock	No Controls	Per Building	Existing	214	8	\$109	10%	25%	\$0.10	0.00
Electric	Health	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	581	11	\$226	95%	65%	\$0.06	0.00
Electric	Health	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	581	11	\$226	95%	65%	\$0.06	0.00
Electric	Health	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	974	11	\$378	95%	65%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Lighting Interior Other	Exit Sign - LED	LED Exit Sign	CFL Exit Sign	Per Building	Existing	974	11	\$378	95%	65%	\$0.06	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	116	13	\$98	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	116	13	\$98	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	194	13	\$168	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	Existing	194	13	\$168	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	2,209	10	\$332	25%	75%	\$0.03	199,102
Electric	Health	Lighting Interior Other	Bi-Level Control, Stairwell Lighting	Occupancy Sensor Control, 50% Lighting Power during unoccupied Time	Continuous Full Power Lighting in Stairways	Per Building	New	2,209	10	\$558	25%	75%	\$0.04	200,262
Electric	Health	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	10,351	8	\$10,789	15%	50%	\$0.21	0.00
Electric	Health	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	10,351	8	\$10,789	15%	50%	\$0.21	0.00
Electric	Health	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	13,396	8	\$10,789	15%	50%	\$0.16	0.00
Electric	Health	Lighting Interior Other	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	13,396	8	\$10,789	15%	50%	\$0.16	0.00
Electric	Health	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	7,763	8	\$8,092	15%	50%	\$0.21	0.00
Electric	Health	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	7,763	8	\$8,092	15%	50%	\$0.21	0.00
Electric	Health	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	10,047	8	\$8,092	15%	50%	\$0.16	0.00
Electric	Health	Lighting Interior Other	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	Per Building	New	10,047	8	\$8,092	15%	50%	\$0.16	0.00
Electric	Health	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	185	6	\$44	15%	80%	\$0.02	11,330
Electric	Health	Lighting Interior Other	Display Case LEDs	Display Case LEDs	Standard Case Lighting	Per Building	New	185	6	\$44	15%	80%	\$0.02	11,396
Electric	Health	Lighting Interior Other	Display Case LEDs (Open Cases)	Display Case LEDs (Open Cases)	Standard Case Lighting	Per Building	New	83	6	\$32	15%	80%	\$0.07	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	116	13	\$98	95%	95%	\$0.12	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	116	13	\$98	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	194	13	\$168	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign	Per Building	New	194	13	\$168	95%	95%	\$0.12	0.00
Electric	Health	Lighting Interior Other	Lighting Package - High Efficiency	9% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	5,523	13	\$8,373	100%	N/A	\$0.22	0.00
Electric	Health	Lighting Interior Other	Lighting Package - High Efficiency	9% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	5,523	13	\$8,373	100%	N/A	\$0.22	0.00
Electric	Health	Lighting Interior Other	Lighting Package - High Efficiency	9% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	9,942	13	\$5,508	100%	N/A	\$0.08	0.00
Electric	Health	Lighting Interior Other	Lighting Package - High Efficiency	9% LPD Reduction	Standard Lighting Power Density (LPD)	Per Building	New	9,942	13	\$5,508	100%	N/A	\$0.08	0.00
Electric	Health	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	New	8,892	8	\$729	75%	90%	\$0.02	3,051,422
Electric	Health	Lighting Interior Other	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	New	8,892	8	\$1,225	75%	90%	\$0.03	3,068,536
Electric	Health	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	50,583	4	\$294	85%	N/A	\$-0.02	0.00
Electric	Health	Lighting Interior Screw Base	Lighting Interior - Screw Base CFL - Above Standard	Above Standard Screw Base Interior CFL Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	68,354	4	\$397	85%	N/A	\$-0.02	0.00
Electric	Health	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	42,288	1	\$91	100%	N/A	\$0.01	0.00
Electric	Health	Lighting Interior Screw Base	Lighting Interior - Screw Base Incandescent - Backstop EISA Standard	Standard Screw Base Interior Backstop EISA Incandescent Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	57,145	1	\$121	100%	N/A	\$0.01	0.00
Electric	Health	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	50,968	12	\$7,493	85%	N/A	\$0.01	12,775,844
Electric	Health	Lighting Interior Screw Base	Lighting Interior - Screw Base LED - Above Standard	Above Standard Screw Base Interior LED Lighting	Standard Screw Base Interior EISA Incandescent Lighting	Per Building	Existing	68,873	12	\$10,125	85%	N/A	\$0.01	13,034,790
Electric	Health	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	Existing	3,602	8	\$729	75%	90%	\$0.04	4,396,289
Electric	Health	Lighting Interior Screw Base	Occupancy Sensor Control	Occupancy Sensor Control	No Occupancy Sensor Control	Per Building	Existing	3,602	8	\$1,225	75%	90%	\$0.07	0.00
Electric	Health	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	3,356	8	\$65	1.0%	25%	\$0.00	18,233
Electric	Health	Lighting Interior Screw Base	Time Clock	Time Clock	No Controls	Per Building	Existing	3,356	8	\$109	1.0%	25%	\$0.01	14,508
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	10	7	\$4	10%	90%	\$0.10	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	10	7	\$4	10%	90%	\$0.10	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	15	7	\$4	10%	90%	\$0.06	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	Existing	15	7	\$4	10%	90%	\$0.06	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	127	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	Existing	127	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	118	10	\$0.00	95%	75%	\$0.00	371,568
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	118	10	\$0.00	95%	75%	\$0.00	491,508
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	118	10	\$0.00	95%	75%	\$0.00	371,568
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	Existing	118	10	\$0.00	95%	75%	\$0.00	491,508
Electric	Health	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	41	10	\$28	5.0%	85%	\$0.12	0.00
Electric	Health	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	41	10	\$28	5.0%	85%	\$0.12	0.00
Electric	Health	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	41	10	\$28	5.0%	85%	\$0.12	0.00
Electric	Health	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	Existing	41	10	\$28	5.0%	85%	\$0.12	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	266	4	\$53	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	266	4	\$53	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	446	4	\$88	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	Existing	446	4	\$88	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	10	7	\$4	10%	90%	\$0.10	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	10	7	\$4	10%	90%	\$0.10	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	15	7	\$4	10%	90%	\$0.06	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	Per Building	New	15	7	\$4	10%	90%	\$0.06	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	127	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	127	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	127	4	\$0.00	10%	45%	\$0.00	0.00
Electric	Health	Other Plug Load	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	Per Building	New	127	4	\$0.00	10%	45%	\$0.00	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	118	10	\$0.00	95%	75%	\$0.00	49,809
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	118	10	\$0.00	95%	75%	\$0.00	51,281
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	118	10	\$0.00	95%	75%	\$0.00	49,809
Electric	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	Per Building	New	118	10	\$0.00	95%	75%	\$0.00	51,281
Electric	Health	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	New	41	10	\$28	5.0%	85%	\$0.12	0.00
Electric	Health	Other Plug Load	Ice Maker	High-Efficiency ENERGY STAR Ice Maker - Air Cooled	Standard Ice Maker	Per Building	New	41	10	\$28	5.0%	85%	\$0.12	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	266	4	\$53	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	266	4	\$53	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	446	4	\$88	60%	90%	\$0.07	0.00
Electric	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	Per Building	New	446	4	\$88	60%	90%	\$0.07	0.00
Electric	Health	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	Existing	224	6	\$280	100%	N/A	\$0.31	0.00
Electric	Health	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	224	6	\$280	100%	N/A	\$0.31	32
Electric	Health	Photo Copiers	Copiers - ENERGY STAR	ENERGY STAR Copiers	Standard Copier	Per Building	New	224	6	\$280	100%	N/A	\$0.31	40
Electric	Health	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per Building	Existing	7,757	10	\$149	75%	25%	\$0.00	0.00
Electric	Health	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	517	6	\$74	100%	N/A	\$0.04	18,073
Electric	Health	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	Existing	517	6	\$74	100%	N/A	\$0.04	26,630
Electric	Health	Printers	Printers - ENERGY STAR	ENERGY STAR Printers	Standard Printers	Per Building	New	517	6	\$74	100%	N/A	\$0.04	0.00
Electric	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	651	8	\$56	5.0%	75%	\$0.02	91,456
Electric	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	Existing	651	8	\$56	5.0%	75%	\$0.02	119,571
Electric	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	625	15	\$152	5.0%	50%	\$0.03	58,691
Electric	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	Existing	625	15	\$152	5.0%	50%	\$0.03	76,733
Electric	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	432	15	\$46	5.0%	90%	\$0.01	72,993
Electric	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	Per Building	Existing	432	15	\$46	5.0%	90%	\$0.01	95,432
Electric	Health	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	Per Building	Existing	55	15	\$37	5.0%	90%	\$0.09	0.00
Electric	Health	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	Existing	423	10	\$350	2.5%	80%	\$0.14	0.00
Electric	Health	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	Existing	574	10	\$477	2.5%	80%	\$0.14	0.00
Electric	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	Existing	134	10	\$3,300	5.0%	70%	\$4.16	0.00
Electric	Health	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	62	8	\$7	5.0%	95%	\$0.02	11,092

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	Existing	62	8	\$7	5.0%	95%	\$0.02	14,501
Electric	Health	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	Existing	11	15	\$9	35%	80%	\$0.11	0.00
Electric	Health	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	Existing	13	12	\$14	95%	80%	\$0.15	0.00
Electric	Health	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	268	5	\$42	95%	90%	\$0.05	856,557
Electric	Health	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	Existing	268	5	\$42	95%	90%	\$0.05	1,119,877
Electric	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	Existing	524	3	\$81	10%	90%	\$0.07	0.00
Electric	Health	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	10	12	\$-2,3389	95%	80%	\$-0.03	30,530
Electric	Health	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	Existing	10	12	\$-2,3389	95%	80%	\$-0.03	39,915
Electric	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	Per Building	Existing	19	4	\$14	15%	80%	\$0.25	0.00
Electric	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	Existing	109	15	\$121	2.5%	95%	\$0.15	0.00
Electric	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	651	8	\$56	5.0%	20%	\$0.02	3,276
Electric	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	Per Building	New	651	8	\$56	5.0%	20%	\$0.02	3,334
Electric	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	466	15	\$114	5.0%	50%	\$0.03	5,746
Electric	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	Per Building	New	466	15	\$114	5.0%	50%	\$0.03	5,822
Electric	Health	Refrigeration	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Commercial Refrigerator - Semivertical - No Doors - Med Temp	Standard Case	Per Building	New	315	10	\$261	2.5%	80%	\$0.14	0.00
Electric	Health	Refrigeration	Commercial Refrigerator - Vertical - No Doors - Med Temp	Commercial Refrigerator - Vertical - No Doors - Med Temp	Standard Case	Per Building	New	428	10	\$355	2.5%	80%	\$0.14	0.00
Electric	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	Per Building	New	100	10	\$3,300	5.0%	70%	\$5.58	0.00
Electric	Health	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	46	8	\$4	5.0%	95%	\$0.02	1,109
Electric	Health	Refrigeration	Display Case Motion Sensors	Display Case Motion Sensors	No Motion Sensors	Per Building	New	46	8	\$4	5.0%	95%	\$0.02	1,129
Electric	Health	Refrigeration	Evaporator Fan Controller	ECM Evaporator Fan Controller	No Controller	Per Building	New	11	15	\$9	35%	80%	\$0.11	0.00
Electric	Health	Refrigeration	Glass Door ENERGY STAR Refrigerators/Freezers	Glass Door ENERGY STAR Refrigerators/Freezers	Standard Glass Doors	Per Building	New	13	12	\$14	95%	80%	\$0.15	0.00
Electric	Health	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	268	5	\$42	95%	90%	\$0.05	115,244
Electric	Health	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	Per Building	New	268	5	\$42	95%	90%	\$0.05	117,289
Electric	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	Per Building	New	195	3	\$23	5.0%	90%	\$0.05	0.00
Electric	Health	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	10	12	\$-2,3389	95%	80%	\$-0.03	4,094
Electric	Health	Refrigeration	Solid Door ENERGY STAR Refrigerators/Freezers	Solid Door ENERGY STAR Refrigerators/Freezers	Standard Solid Door	Per Building	New	10	12	\$-2,3389	95%	80%	\$-0.03	4,167

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-Ins	Per Building	New	19	4	\$14	15%	80%	\$0.25	0.00
Electric	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	Per Building	New	109	15	\$121	2.5%	95%	\$0.15	0.00
Electric	Health	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	367	20	\$998	100%	N/A	\$0.31	0.00
Electric	Health	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	411	20	\$1,337	100%	N/A	\$0.36	0.00
Electric	Health	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	322	20	\$77	100%	N/A	\$0.03	133,569
Electric	Health	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	322	20	\$77	100%	N/A	\$0.03	151,192
Electric	Health	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	Existing	102	20	\$35	100%	N/A	\$0.04	0.00
Electric	Health	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	2,517	20	\$266	8.8%	100%	\$0.01	642,514
Electric	Health	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	2,517	20	\$266	8.8%	100%	\$0.01	642,514
Electric	Health	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	2,568	20	\$257	8.8%	100%	\$0.01	867,244
Electric	Health	Refrigerators	Residential Refrigerator Recycling	Recycling Existing Refrigerator	Existing Refrigerator	Per Building	Existing	2,568	20	\$257	8.8%	100%	\$0.01	867,244
Electric	Health	Refrigerators	Refrigerator - CEE Tier 2	CEE Tier 2 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	367	20	\$998	100%	N/A	\$0.31	0.00
Electric	Health	Refrigerators	Refrigerator - CEE Tier 3	CEE Tier 3 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	411	20	\$1,337	100%	N/A	\$0.36	0.00
Electric	Health	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	322	20	\$77	100%	N/A	\$0.03	57,160
Electric	Health	Refrigerators	Refrigerator - ENERGY STAR	ENERGY STAR Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	322	20	\$77	100%	N/A	\$0.03	71,240
Electric	Health	Refrigerators	Refrigerator - Federal Standard 2015	Federal Standard 2015 Refrigerator	Federal Standard 2001 Refrigerator	Per Building	New	102	20	\$35	100%	N/A	\$0.04	0.00
Electric	Health	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	169	15	\$6,366	15%	95%	\$4.90	0.00
Electric	Health	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	216	15	\$6,366	15%	95%	\$3.85	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	311	15	\$55,036	2.5%	65%	\$23.11	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	396	15	\$55,036	2.5%	65%	\$18.15	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	311	15	\$45,456	2.5%	65%	\$19.09	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	396	15	\$45,456	2.5%	65%	\$14.99	0.00
Electric	Health	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	76	12	\$5,449	2.5%	85%	\$10.70	0.00
Electric	Health	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	97	12	\$5,449	2.5%	85%	\$8.41	0.00
Electric	Health	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	169	40	\$84,281	2.0%	100%	\$96.29	0.00

Table F.2. Commercial Energy Efficiency Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	216	40	\$84,281	2.0%	100%	\$75.63	0.00
Electric	Health	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	84	12	\$605	10%	60%	\$1.07	0.00
Electric	Health	Room Cool	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	108	12	\$605	10%	60%	\$0.84	0.00
Electric	Health	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2	25	\$9,580	45%	65%	\$354.14	0.00
Electric	Health	Room Cool	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	3	25	\$9,580	45%	65%	\$278.15	0.00
Electric	Health	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.59	25	\$4,607	25%	85%	\$795.27	0.00
Electric	Health	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	0.75	25	\$4,607	25%	85%	\$624.63	0.00
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	202	9	\$49	100%	N/A	\$0.04	32.722
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	202	9	\$49	100%	N/A	\$0.04	32.722
Electric	Health	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	214	25	\$58	15%	90%	\$0.03	0.00
Electric	Health	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	272	25	\$58	15%	90%	\$0.02	17.635
Electric	Health	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	195	25	\$849	15%	25%	\$0.44	0.00
Electric	Health	Room Cool	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	248	25	\$849	15%	25%	\$0.35	0.00
Electric	Health	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	169	15	\$6,366	15%	95%	\$4.90	0.00
Electric	Health	Room Cool	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	216	15	\$6,366	15%	95%	\$3.85	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	311	15	\$44,029	2.5%	65%	\$18.49	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split AC	ENERGY STAR Mini-Split AC (10,000 Btuh) - 12.0 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	396	15	\$44,029	2.5%	65%	\$14.52	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	311	15	\$36,367	2.5%	65%	\$15.27	0.00
Electric	Health	Room Cool	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	396	15	\$36,367	2.5%	65%	\$11.99	0.00
Electric	Health	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	76	12	\$5,449	2.5%	85%	\$10.70	0.00
Electric	Health	Room Cool	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	97	12	\$5,449	2.5%	85%	\$8.41	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	169	40	\$84,281	2.0%	100%	\$96.29	0.00
Electric	Health	Room Cool	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	216	40	\$84,281	2.0%	100%	\$75.63	0.00
Electric	Health	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.59	25	\$4,607	75%	85%	\$795.27	0.00
Electric	Health	Room Cool	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	0.75	25	\$4,607	75%	85%	\$624.63	0.00
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	158	9	\$49	100%	N/A	\$0.06	0.00
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	202	9	\$49	100%	N/A	\$0.04	7,519
Electric	Health	Room Cool	Room Cool - ENERGY STAR	ENERGY STAR Room AC (10,000 Btuh) - 10.8 EER	Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	202	9	\$49	100%	N/A	\$0.04	7,519
Electric	Health	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	214	25	\$58	80%	90%	\$0.03	0.00
Electric	Health	Room Cool	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	272	25	\$58	80%	90%	\$0.02	10,929
Electric	Health	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	Existing	2,857	15	\$45,477	2.5%	65%	\$2.08	0.00
Electric	Health	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	207	12	\$5,449	2.5%	85%	\$3.95	0.00
Electric	Health	Room Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	460	12	\$605	10%	60%	\$0.20	0.00
Electric	Health	Room Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	535	25	\$9,580	45%	65%	\$1.82	0.00
Electric	Health	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	114	25	\$4,607	25%	85%	\$4.09	0.00
Electric	Health	Room Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,106	25	\$17,099	15%	85%	\$1.57	0.00
Electric	Health	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	206	25	\$5,276	15%	95%	\$2.61	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	557	25	\$42,039	10%	45%	\$7.68	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	557	25	\$42,039	10%	45%	\$7.68	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,463	25	\$42,039	10%	45%	\$2.93	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	1,463	25	\$42,039	10%	45%	\$2.93	0.00
Electric	Health	Room Heat	ENERGY STAR - Mini-Split Heat Pump	ENERGY STAR Mini-Split Heat Pump (10,000 Btuh) - 12.0 EER, 9.0 HSPF	Standard Baseboard Heat and Federal Standard 2000 Room AC (10,000 Btuh) - 9.8 EER	Per Building	New	2,857	15	\$31,186	2.5%	65%	\$1.43	0.00
Electric	Health	Room Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	207	12	\$5,449	2.5%	85%	\$3.95	0.00
Electric	Health	Room Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	114	25	\$4,607	75%	85%	\$4.09	0.00
Electric	Health	Room Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	206	25	\$5,276	15%	95%	\$2.61	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	557	25	\$4,394	95%	85%	\$0.80	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	557	25	\$4,394	95%	85%	\$0.80	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,463	25	\$4,394	95%	85%	\$0.31	0.00
Electric	Health	Room Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,463	25	\$4,394	95%	85%	\$0.31	0.00
Electric	Health	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	115	9	\$14	100%	N/A	\$0.02	261,893
Electric	Health	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	Existing	115	9	\$14	100%	N/A	\$0.02	324,013
Electric	Health	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	Existing	398	4	\$1,494	10%	65%	\$1.33	0.00
Electric	Health	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	115	9	\$14	100%	N/A	\$0.02	39,696
Electric	Health	Servers	Server - High Efficiency	High Efficiency Server	Standard Server	Per Building	New	115	9	\$14	100%	N/A	\$0.02	41,516
Electric	Health	Servers	Server Virtualization	Server Virtualization	No Virtualization	Per Building	New	397	4	\$1,494	10%	65%	\$1.33	0.00
Electric	Health	Space Heat	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	277	15	\$877	5.0%	95%	\$0.41	0.00
Electric	Health	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	2,776	15	\$71,102	15%	70%	\$3.35	0.00
Electric	Health	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	1,388	5	\$1,461	75%	75%	\$0.31	0.00
Electric	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	231	18	\$5,613	45%	85%	\$2.87	0.00
Electric	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	Existing	1,388	14	\$40,229	5.0%	95%	\$3.95	0.00
Electric	Health	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	Existing	416	12	\$5,449	2.5%	85%	\$1.96	0.00
Electric	Health	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	925	12	\$605	10%	60%	\$0.10	0.00
Electric	Health	Space Heat	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	1,077	25	\$9,580	45%	65%	\$0.91	0.00
Electric	Health	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	230	25	\$4,607	25%	85%	\$2.03	0.00
Electric	Health	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	277	20	\$694	45%	60%	\$0.28	0.00
Electric	Health	Space Heat	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	277	20	\$1,167	45%	60%	\$0.47	0.00
Electric	Health	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	166	20	\$123	45%	85%	\$0.08	0.00
Electric	Health	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	166	20	\$203	45%	85%	\$0.14	0.00
Electric	Health	Space Heat	Insulation - Floor (non-slab)	R-30 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	2,225	25	\$17,099	15%	85%	\$0.78	0.00
Electric	Health	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	Existing	414	25	\$5,276	15%	95%	\$1.30	0.00
Electric	Health	Space Heat	Insulation - Wall	R-13 + 7.5 (KY State Code)	Average Existing Conditions	Per Building	Existing	2,942	25	\$42,039	10%	45%	\$1.46	0.00
Electric	Health	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	1,156	7	\$4,609	90%	95%	\$0.88	0.00
Electric	Health	Space Heat	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	303	7	\$17,307	95%	95%	\$12.64	0.00
Electric	Health	Space Heat	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	1,388	5	\$1,461	25%	25%	\$0.31	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	Per Building	New	1,388	14	\$40,229	5.0%	95%	\$3.95	0.00
Electric	Health	Space Heat	Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	Hood Pulls Conditioned Air (No Make-up Air)	Per Building	New	416	12	\$5,449	2.5%	85%	\$1.96	0.00
Electric	Health	Space Heat	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	230	25	\$4,607	75%	85%	\$2.03	0.00
Electric	Health	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	166	20	\$123	45%	85%	\$0.08	0.00
Electric	Health	Space Heat	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	166	20	\$203	45%	85%	\$0.14	0.00
Electric	Health	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (KY State Code)	Per Building	New	414	25	\$5,276	15%	95%	\$1.30	0.00
Electric	Health	Space Heat	Insulation - Wall	R-13 + 10	R-13 + 7.5 (KY State Code)	Per Building	New	1,121	25	\$4,394	95%	85%	\$0.40	0.00
Electric	Health	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	997	10	\$137	100%	N/A	\$0.02	1,256,192
Electric	Health	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	Existing	997	10	\$137	100%	N/A	\$0.02	1,478,782
Electric	Health	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	997	10	\$137	100%	N/A	\$0.02	257,426
Electric	Health	Vending Machines	Vending Machines - High Efficiency	ENERGY STAR (Tier 2) Vending Machines - High Efficiency 500 can capacity Under 5.92 kWh/day	Standard Vending Machines - 13 kWh/day	Per Building	New	997	10	\$137	100%	N/A	\$0.02	269,833
Electric	Health	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	20,543	10	\$2,867	5.0%	90%	\$0.02	2,332,179
Electric	Health	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	Existing	20,543	10	\$2,867	5.0%	90%	\$0.02	2,888,315
Electric	Health	Ventilation And Circulation	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	30,815	15	\$71,102	15%	70%	\$0.30	0.00
Electric	Health	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	Existing	130	18	\$297	95%	85%	\$0.27	0.00
Electric	Health	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	1,047	15	\$154	95%	90%	\$0.02	2,279,764
Electric	Health	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	Existing	1,047	15	\$154	95%	90%	\$0.02	2,823,401
Electric	Health	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	26,193	20	\$2,605	55%	65%	\$0.01	26,221,264
Electric	Health	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	Existing	26,193	20	\$2,605	55%	65%	\$0.01	32,474,035
Electric	Health	Ventilation And Circulation	Motor Rewind	>15, <500 HP	No Rewind	Per Building	Existing	412	7	\$116	65%	25%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Ventilation And Circulation	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	Per Building	Existing	1,643	18	\$1,702	65%	85%	\$0.12	0.00
Electric	Health	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	20,543	10	\$2,867	5.0%	90%	\$0.02	310,654
Electric	Health	Ventilation And Circulation	Automated Exhaust VFD Control - Parking Garage CO sensor	CO Sensors	No CO Sensors	Per Building	New	20,543	10	\$2,867	5.0%	90%	\$0.02	322,280
Electric	Health	Ventilation And Circulation	Cooking Hood Controls	Demand-Ventilation Control	No Controls	Per Building	New	130	18	\$297	95%	85%	\$0.27	0.00
Electric	Health	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	1,047	15	\$154	95%	90%	\$0.02	295,890
Electric	Health	Ventilation And Circulation	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	Per Building	New	1,047	15	\$154	95%	90%	\$0.02	308,306
Electric	Health	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	26,193	20	\$2,605	55%	45%	\$0.01	2,120,385
Electric	Health	Ventilation And Circulation	Motor - Pump & Fan System - Variable Speed Control	Pump And Fan System Optimization with VSD	No Pump And Fan System VSD Optimization	Per Building	New	26,193	20	\$2,605	55%	45%	\$0.01	2,233,249
Electric	Health	Ventilation And Circulation	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	Per Building	New	1,643	18	\$1,702	65%	85%	\$0.12	0.00
Electric	Health	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	112	9	\$44	25%	95%	\$0.07	0.00
Electric	Health	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	53	14	\$18	5.0%	95%	\$0.05	762
Electric	Health	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	53	14	\$18	5.0%	95%	\$0.05	989
Electric	Health	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	388	10	\$6,497	55%	95%	\$2.84	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	8	12	\$23	75%	35%	\$0.44	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	143	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	143	12	\$81	10%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	131	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	131	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	77	12	\$507	75%	75%	\$0.98	0.00
Electric	Health	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	1,555	25	\$16,000	2.5%	95%	\$1.05	0.00
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	300	9	\$2	95%	75%	\$0.00	122,405
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	300	9	\$2	95%	75%	\$0.00	158,903
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	123	9	\$2	95%	50%	\$0.00	33,601
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	123	9	\$2	95%	50%	\$0.00	43,620
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	46	9	\$25	95%	25%	\$0.10	0.00
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	128	4	\$39	95%	95%	\$0.11	0.00
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	134	10	\$9	95%	85%	\$0.01	51,733
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	134	10	\$9	95%	85%	\$0.01	51,733
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	225	10	\$16	95%	85%	\$0.01	112,491
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	225	10	\$16	95%	85%	\$0.01	112,491
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	108	10	\$23	95%	25%	\$0.04	12,271
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	108	10	\$23	95%	25%	\$0.04	12,271
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	181	10	\$37	95%	25%	\$0.03	26,683
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	181	10	\$37	95%	25%	\$0.03	26,683
Electric	Health	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	194	10	\$392	75%	85%	\$0.34	0.00
Electric	Health	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	886	10	\$102	2.5%	95%	\$0.02	10,984

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	886	10	\$173	2.5%	95%	\$0.03	14,117
Electric	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	4,644	15	\$6,448	75%	N/A	\$0.24	0.00
Electric	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	Existing	4,589	15	\$3,854	75%	N/A	\$0.17	0.00
Electric	Health	Water Heat Gt 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	112	9	\$44	25%	95%	\$0.07	0.00
Electric	Health	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	53	14	\$18	5.0%	95%	\$0.05	74
Electric	Health	Water Heat Gt 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	53	14	\$18	5.0%	95%	\$0.05	76
Electric	Health	Water Heat Gt 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	385	10	\$6,497	55%	95%	\$2.86	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	8	12	\$23	75%	35%	\$0.44	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	143	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	143	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	131	12	\$79	10%	95%	\$0.09	0.00

Table F.2. Commercial Water Conservation Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Gt 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	131	12	\$79	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Gt 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	1,542	25	\$12,798	2.5%	95%	\$0.84	0.00
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	298	9	\$2	95%	75%	\$0.00	12,065
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	298	9	\$2	95%	75%	\$0.00	12,338
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	122	9	\$2	95%	50%	\$0.00	3,311
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	122	9	\$2	95%	50%	\$0.00	3,386
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	128	4	\$39	95%	95%	\$0.11	0.00
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	134	10	\$9	95%	85%	\$0.01	5,258
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	134	10	\$9	95%	85%	\$0.01	5,258
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	225	10	\$16	95%	85%	\$0.01	8,612
Electric	Health	Water Heat Gt 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	225	10	\$16	95%	85%	\$0.01	8,612
Electric	Health	Water Heat Gt 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	192	10	\$392	75%	85%	\$0.35	0.00
Electric	Health	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	879	10	\$102	2.5%	95%	\$0.02	1,107
Electric	Health	Water Heat Gt 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	879	10	\$173	2.5%	95%	\$0.03	1,071
Electric	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater GT 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	4,644	15	\$6,448	75%	N/A	\$0.24	0.00
Electric	Health	Water Heat Gt 55 Gal	Water Heater GT 55 Gal - Heat Pump - Federal Standard 2015	Federal Standard 2015 Heat Pump Water Heater GT 55 Gal - EF 1.97	Federal Standard 2004 Storage Water Heater GT 55 Gal - EF 0.87	Per Building	New	4,589	15	\$3,854	75%	N/A	\$0.17	0.00
Electric	Health	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	Existing	112	9	\$44	25%	95%	\$0.07	0.00
Electric	Health	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	53	14	\$18	5.0%	95%	\$0.05	1,726
Electric	Health	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	Existing	53	14	\$18	5.0%	95%	\$0.05	2,241
Electric	Health	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	Existing	406	10	\$6,497	75%	95%	\$2.72	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	Existing	8	12	\$23	75%	35%	\$0.44	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	143	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	143	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	131	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	Existing	131	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Domestic Hot Water Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	No Insulation	Per Building	Existing	81	12	\$507	75%	75%	\$0.94	0.00
Electric	Health	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	Existing	1,625	25	\$16,000	2.5%	95%	\$1.00	0.00
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	314	9	\$2	95%	75%	\$0.00	289,839
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	314	9	\$2	95%	75%	\$0.00	376,284
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	129	9	\$2	95%	50%	\$0.00	79,563
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	Existing	129	9	\$2	95%	50%	\$0.00	103,293
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	2.5 GPM	Per Building	Existing	48	9	\$25	95%	25%	\$0.10	0.00
Electric	Health	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	Existing	128	4	\$39	95%	95%	\$0.11	0.00
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	134	10	\$9	95%	85%	\$0.01	117,215
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	134	10	\$9	95%	85%	\$0.01	117,215
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	225	10	\$16	95%	85%	\$0.01	254,893
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	Existing	225	10	\$16	95%	85%	\$0.01	254,893

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	108	10	\$23	95%	25%	\$0.04	27,804
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	108	10	\$23	95%	25%	\$0.04	27,804
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	181	10	\$37	95%	25%	\$0.03	60,462
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	2.5 GPM (Federal Code)	3.0 GPM	Per Building	Existing	181	10	\$37	95%	25%	\$0.03	60,462
Electric	Health	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	Existing	203	10	\$392	75%	85%	\$0.33	0.00
Electric	Health	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	926	10	\$102	2.5%	95%	\$0.02	26,025
Electric	Health	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	Existing	926	10	\$173	2.5%	95%	\$0.03	33,466
Electric	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	4,294	15	\$33,114	75%	N/A	\$1.13	0.00
Electric	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	Existing	251	15	\$1,445	100%	N/A	\$0.75	0.00
Electric	Health	Water Heat Le 55 Gal	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer - MEF = 2.43, WF = 4.0	Commercial 2013 Federal Standard Clothes Washer - MEF = 1.6, WF = 8.5	Per Building	New	112	9	\$44	25%	95%	\$0.07	0.00
Electric	Health	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	53	14	\$18	5.0%	95%	\$0.05	222
Electric	Health	Water Heat Le 55 Gal	Clothes Washer Residential	ENERGY STAR - CEE Tier 1 Residential Clothes Washer - MEF = 2.0, WF = 6.0	Residential 2011 Federal Standard Clothes Washer - MEF = 1.26, WF = 9.0	Per Building	New	53	14	\$18	5.0%	95%	\$0.05	224
Electric	Health	Water Heat Le 55 Gal	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	Per Building	New	394	10	\$6,497	75%	95%	\$2.80	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwasher Residential	ENERGY STAR Dishwasher - 295 kWh/yr and 4.25 gal/cycle	Federal Standard 2010 Dishwasher - 355 kWh/yr and 6.5 gal/cycle	Per Building	New	8	12	\$23	75%	35%	\$0.44	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	116	12	\$65	10%	95%	\$0.08	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	143	12	\$81	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	143	12	\$81	10%	95%	\$0.09	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	107	12	\$65	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	131	12	\$79	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	Per Building	New	131	12	\$79	10%	95%	\$0.09	0.00
Electric	Health	Water Heat Le 55 Gal	Drainwater Heat Recovery Water Heater	Install (Power-Pipe or GFX) - Heat Recovery Water Heater	No Heat Recovery System	Per Building	New	1,577	25	\$12,798	2.5%	95%	\$0.83	0.00
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	304	9	\$2	95%	75%	\$0.00	36,653
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	0.5 GPM	2.2 GPM (Federal Code)	Per Building	New	304	9	\$2	95%	75%	\$0.00	36,984
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	125	9	\$2	95%	50%	\$0.00	10,061
Electric	Health	Water Heat Le 55 Gal	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	Per Building	New	125	9	\$2	95%	50%	\$0.00	10,152
Electric	Health	Water Heat Le 55 Gal	Low-Flow Pre-Rinse Spray Valves	1.0 GPM	1.6 GPM (Federal Standard)	Per Building	New	128	4	\$39	95%	95%	\$0.11	0.00
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	134	10	\$9	95%	85%	\$0.01	15,419
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	134	10	\$9	95%	85%	\$0.01	15,419
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	225	10	\$16	95%	85%	\$0.01	25,595
Electric	Health	Water Heat Le 55 Gal	Low-Flow Showerheads	1.5 GPM	2.5 GPM (Federal Code)	Per Building	New	225	10	\$16	95%	85%	\$0.01	25,595
Electric	Health	Water Heat Le 55 Gal	Ultrasonic Faucet Control	Install Ultrasonic Motion Faucet Control	No Faucet Control	Per Building	New	197	10	\$392	75%	85%	\$0.34	0.00
Electric	Health	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	898	10	\$102	2.5%	95%	\$0.02	3,319
Electric	Health	Water Heat Le 55 Gal	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating Electric End use	No Heat Recovery	Per Building	New	898	10	\$173	2.5%	95%	\$0.03	3,257
Electric	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	4,294	15	\$33,114	75%	N/A	\$1.13	90
Electric	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Heat Pump - ENERGY STAR	ENERGY STAR Heat Pump Water Heater LE 55 Gal - EF 2.0	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	4,294	15	\$33,114	75%	N/A	\$1.13	166

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	251	15	\$1,445	100%	N/A	\$0.75	-16.87614
Electric	Health	Water Heat Le 55 Gal	Water Heater LE 55 Gal - Storage - Federal Standard 2015	Federal Standard 2015 Storage Water Heater LE 55 Gal - EF 0.95	Federal Standard 2004 Storage Water Heater LE 55 Gal - EF 0.92	Per Building	New	251	15	\$1,445	100%	N/A	\$0.75	-127.542096
Electric	Large Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	16,022	4	\$1,830	100%	N/A	\$0.04	1,500,269
Electric	Large Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	Existing	16,022	4	\$1,830	100%	N/A	\$0.04	1,687,715
Electric	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	24,720	4	\$1,830	95%	65%	\$0.03	22,078,371
Electric	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	Existing	24,720	4	\$1,830	95%	65%	\$0.03	24,020,311
Electric	Large Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	16,022	4	\$1,830	100%	N/A	\$0.04	493,796
Electric	Large Office	Computers	Computer - ENERGY STAR	ENERGY STAR Computer	Standard Computer	Per Building	New	16,022	4	\$1,830	100%	N/A	\$0.04	564,827
Electric	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	24,720	4	\$1,830	95%	65%	\$0.03	2,624,334
Electric	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	Per Building	New	24,720	4	\$1,830	95%	65%	\$0.03	3,099,175
Electric	Large Office	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	8,264	15	\$4,728	75%	95%	\$0.07	0.00
Electric	Large Office	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	8,264	15	\$4,728	75%	95%	\$0.07	2,301,311
Electric	Large Office	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	Existing	15,406	10	\$59,498	25%	95%	\$0.66	0.00
Electric	Large Office	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	Existing	10,189	10	\$51,540	75%	95%	\$0.86	0.00
Electric	Large Office	Cooling Chillers	Chilled Water Side Economizer	Install Economizer	No Economizer	Per Building	Existing	10,189	15	\$38,136	45%	45%	\$1.77	0.00
Electric	Large Office	Cooling Chillers	Chiller - Pipe Insulation	1.0" of Insulation, assuming R-4 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	905	15	\$2,087	90%	90%	\$0.30	0.00
Electric	Large Office	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	Existing	542	15	\$975	75%	90%	\$0.24	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) - High Efficiency	High Efficiency - 0.55 kW/ton (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	Existing	8,227	20	\$4,153	100%	N/A	\$0.06	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) - Premium Efficiency	Premium Efficiency- 0.52 kW/ton (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	Existing	17,720	20	\$8,949	100%	N/A	\$0.06	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) - Premium Efficiency	Premium Efficiency- 0.52 kW/ton (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	Existing	17,720	20	\$8,949	100%	N/A	\$0.06	1,519,339
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) with VSD - Advanced Efficiency	Advanced Efficiency - 0.47 kW/ton w/VSD (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	Existing	33,542	20	\$32,816	75%	N/A	\$0.11	0.00
Electric	Large Office	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	61,138	15	\$29,976	15%	70%	\$0.49	0.00
Electric	Large Office	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	20,379	15	\$8,949	80%	95%	\$0.06	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	20,379	15	\$8,949	80%	95%	\$0.06	-1029152.4457
Electric	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	16,303	7	\$7,353	10%	95%	\$0.10	0.00
Electric	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	Existing	16,303	7	\$7,353	10%	95%	\$0.10	640,325
Electric	Large Office	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	28,531	15	\$658	65%	35%	\$0.00	0.00
Electric	Large Office	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	28,531	15	\$658	65%	35%	\$0.00	3,879,135
Electric	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	8,151	13	\$5,325	75%	75%	\$0.09	0.00
Electric	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-One-Speed Fan Motor	Per Building	Existing	8,151	13	\$5,325	75%	75%	\$0.09	1,939,336
Electric	Large Office	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	30,569	5	\$4,728	75%	75%	\$0.05	0.00
Electric	Large Office	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	30,569	5	\$4,728	75%	75%	\$0.05	8,060,567
Electric	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	20,379	40	\$58,919	2.0%	100%	\$1.13	0.00
Electric	Large Office	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	10,189	12	\$2,458	10%	60%	\$0.04	0.00
Electric	Large Office	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	10,189	12	\$2,458	10%	60%	\$0.04	237,332
Electric	Large Office	Cooling Chillers	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	330	25	\$13,458	45%	65%	\$4.15	0.00
Electric	Large Office	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	70	25	\$6,483	25%	85%	\$9.33	0.00
Electric	Large Office	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	25,474	7	\$14,910	90%	95%	\$0.13	0.00
Electric	Large Office	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	20,379	3	\$7	95%	20%	\$0.00	0.00
Electric	Large Office	Cooling Chillers	Tune-up - Chiller Maintenance	Chiller Tune-up	Unmaintained Chiller	Per Building	Existing	20,379	3	\$7	95%	20%	\$0.00	2,399,779
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	8,831	10	\$21,666	35%	70%	\$0.42	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	8,831	10	\$21,666	35%	70%	\$0.42	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	19,136	10	\$21,666	35%	70%	\$0.19	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	Existing	19,136	10	\$21,666	35%	70%	\$0.19	0.00
Electric	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	25,713	25	\$226	15%	90%	\$0.00	0.00
Electric	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	25,713	25	\$226	15%	90%	\$0.00	1,800,127
Electric	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	23,453	25	\$3,442	15%	25%	\$0.01	0.00
Electric	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	23,453	25	\$3,442	15%	25%	\$0.01	342,891
Electric	Large Office	Cooling Chillers	Chilled Water Piping Loop with VSD Control	VSD for Secondary Chilled Water Loop	Primary Loop Only with Constant Speed Pump	Per Building	New	13,729	10	\$53,545	25%	95%	\$0.66	0.00
Electric	Large Office	Cooling Chillers	Chilled Water Reset	Chilled Water Temperature Reset	Constant Chilled Water Temperature	Per Building	New	9,080	10	\$51,540	0.0%	0%	\$0.96	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Cooling Chillers	Chiller - Pipe Insulation	2.0" of Insulation, assuming R-8	1.0" of Insulation, assuming R-4 (KY State Code)	Per Building	New	542	15	\$975	95%	90%	\$0.24	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) - High Efficiency	High Efficiency - 0.55 kW/ton (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	New	8,227	20	\$3,737	100%	N/A	\$0.05	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) - Premium Efficiency	Premium Efficiency- 0.52 kW/ton (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	New	17,720	20	\$8,056	100%	N/A	\$0.05	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) - Premium Efficiency	Premium Efficiency- 0.52 kW/ton (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	New	17,720	20	\$8,056	100%	N/A	\$0.05	63,848
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) with VSD - Advanced Efficiency	Advanced Efficiency - 0.47 kW/ton w/VSD (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	New	33,542	20	\$29,359	75%	N/A	\$0.10	0.00
Electric	Large Office	Cooling Chillers	Chillers > 300 tons (centrifugal) with VSD - Advanced Efficiency	Advanced Efficiency - 0.47 kW/ton w/VSD (full load)	Standard Efficiency - 0.576 kW/ton (full load)	Per Building	New	33,542	20	\$29,359	75%	N/A	\$0.10	1,276,700
Electric	Large Office	Cooling Chillers	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	5,956	7	\$55,981	95%	95%	\$2.08	0.00
Electric	Large Office	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	18,160	15	\$8,949	80%	95%	\$0.06	0.00
Electric	Large Office	Cooling Chillers	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	18,160	15	\$8,949	80%	95%	\$0.06	684,179
Electric	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	14,528	7	\$6,619	10%	95%	\$0.10	0.00
Electric	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	Per Building	New	14,528	7	\$6,619	10%	95%	\$0.10	78,260
Electric	Large Office	Cooling Chillers	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	27,241	5	\$4,728	0.0%	25%	\$0.05	0.00
Electric	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	18,160	40	\$58,919	2.0%	100%	\$1.27	0.00
Electric	Large Office	Cooling Chillers	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	63	25	\$6,483	75%	85%	\$10.47	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	8,831	10	\$21,666	0.0%	0%	\$0.42	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	8,831	10	\$21,666	0.0%	0%	\$0.42	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	19,136	10	\$21,666	0.0%	0%	\$0.19	0.00
Electric	Large Office	Cooling Chillers	Window Film	Window Film	No Film	Per Building	New	19,136	10	\$21,666	0.0%	0%	\$0.19	0.00
Electric	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	22,913	25	\$226	80%	90%	\$0.00	0.00
Electric	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	22,913	25	\$226	80%	90%	\$0.00	1,014,173
Electric	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	13,127	15	\$4,728	75%	95%	\$0.05	4,407,367
Electric	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	Per Building	Existing	13,867	15	\$4,728	75%	95%	\$0.04	4,972,663
Electric	Large Office	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	97,113	15	\$29,976	15%	70%	\$0.31	0.00

Table F.2. Commercial Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Potential (kWh)
Electric	Large Office	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	Per Building	Existing	102,587	15	\$29,976	15%	70%	\$0.29	0.00
Electric	Large Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	32,371	15	\$8,949	35%	95%	\$0.04	4,824,931
Electric	Large Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	Existing	34,195	15	\$8,949	35%	95%	\$0.03	5,110,712
Electric	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBtuh - High Efficiency	High Efficiency - 10.5 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	18,082	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBtuh - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	28,127	15	\$21,386	100%	N/A	\$0.10	950,490
Electric	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBtuh - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	28,127	15	\$21,386	100%	N/A	\$0.10	1,230,756
Electric	Large Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	48,556	10	\$42,893	10%	20%	\$0.15	0.00
Electric	Large Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	Per Building	Existing	51,293	10	\$42,893	10%	20%	\$0.14	0.00
Electric	Large Office	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	48,556	5	\$4,728	75%	75%	\$0.03	19,836,254
Electric	Large Office	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	Existing	51,293	5	\$4,728	75%	75%	\$0.03	21,636,333
Electric	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	8,092	18	\$18,156	45%	85%	\$0.27	0.00
Electric	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	Per Building	Existing	8,548	18	\$18,156	45%	85%	\$0.25	0.00
Electric	Large Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	227,835	15	-\$144,718.45	35%	N/A	-\$0.11	21,381,013
Electric	Large Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	Existing	227,835	15	-\$144,718.45	35%	N/A	-\$0.11	21,588,471
Electric	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	32,371	40	\$58,919	2.0%	100%	\$0.71	0.00
Electric	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	Existing	34,195	40	\$58,919	2.0%	100%	\$0.67	0.00
Electric	Large Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	16,185	12	\$2,458	10%	60%	\$0.02	476,861
Electric	Large Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	Per Building	Existing	17,097	12	\$2,458	10%	60%	\$0.02	523,740
Electric	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	525	25	\$13,458	45%	65%	\$2.61	0.00
Electric	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-20ci (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	554	25	\$13,458	45%	65%	\$2.47	62,462
Electric	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	112	25	\$6,483	25%	85%	\$5.87	0.00
Electric	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	Existing	118	25	\$6,483	25%	85%	\$5.56	0.00
Electric	Large Office	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	9,711	20	\$5,287	45%	60%	\$0.06	1,103,481
Electric	Large Office	Cooling Dx Evap	Insulation - Duct	R-5 (KY State Code)	Average R-Value Existing Conditions	Per Building	Existing	10,258	20	\$5,287	45%	60%	\$0.06	1,203,618
Electric	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	5,826	20	\$938	45%	85%	\$0.02	1,101,983

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	Existing	6,155	20	\$938	45%	85%	\$0.02	1,198,379
Electric	Large Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	40,464	7	\$14,910	90%	95%	\$0.08	17,499,208
Electric	Large Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	Per Building	Existing	42,744	7	\$14,910	90%	95%	\$0.08	19,087,206
Electric	Large Office	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	32,371	5	\$12,104	95%	50%	\$0.11	0.00
Electric	Large Office	Cooling Dx Evap	Tune-up - DX Maintenance	DX Tune-up / Diagnostics	No DX Tune-Up / Diagnostics	Per Building	Existing	34,195	5	\$12,104	95%	50%	\$0.10	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	8,831	10	\$21,666	35%	70%	\$0.42	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	8,831	10	\$21,666	35%	70%	\$0.42	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	19,136	10	\$21,666	35%	70%	\$0.19	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	Existing	19,136	10	\$21,666	35%	70%	\$0.19	0.00
Electric	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	40,843	25	\$226	15%	90%	\$0.00	3,525,989
Electric	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	Existing	43,145	25	\$226	15%	90%	\$0.00	3,845,961
Electric	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	37,253	25	\$3,442	15%	25%	\$0.01	878,140
Electric	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (KY State Code)	Average U-Value Existing Conditions	Per Building	Existing	39,353	25	\$3,442	15%	25%	\$0.01	957,829
Electric	Large Office	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	10,358	7	\$55,981	95%	95%	\$1.20	0.00
Electric	Large Office	Cooling Dx Evap	Commissioning	Commissioning	Installed Conditions without Commissioning	Per Building	New	10,929	7	\$55,981	95%	95%	\$1.14	0.00
Electric	Large Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	31,582	15	\$8,949	35%	95%	\$0.04	598,325
Electric	Large Office	Cooling Dx Evap	Cool Roofs	ENERGY STAR Cool Roof - Reflect Material (Reflectivity = 0.55)	Standard Roof	Per Building	New	33,322	15	\$8,949	35%	95%	\$0.04	507,127
Electric	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBtuh - High Efficiency	High Efficiency - 10.5 EER	Standard Efficiency - 10.0 EER	Per Building	New	18,082	15	\$0.00	100%	N/A	\$0.00	0.00
Electric	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBtuh - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	New	28,127	15	\$17,112	100%	N/A	\$0.08	412,522
Electric	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBtuh - Premium Efficiency	Premium Efficiency - 10.8 EER	Standard Efficiency - 10.0 EER	Per Building	New	28,127	15	\$17,112	100%	N/A	\$0.08	460,290
Electric	Large Office	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	47,373	5	\$4,728	0.0%	25%	\$0.03	0.00
Electric	Large Office	Cooling Dx Evap	Direct Digital Control System-Installation	Installation of EMS System	Pneumatic Controls	Per Building	New	49,984	5	\$4,728	0.0%	25%	\$0.03	0.00
Electric	Large Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	New	227,835	15	\$-110297.7	35%	N/A	\$-0.08	5,315,885
Electric	Large Office	Cooling Dx Evap	Evaporative Cooler Replaces DX Package 240 to 760 kBtuh - Advanced Efficiency	Advanced Efficiency - 25.0 EER	Standard Efficiency - 10.0 EER	Per Building	New	227,835	15	\$-110297.7	35%	N/A	\$-0.08	6,080,621
Electric	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	31,582	40	\$58,919	2.0%	100%	\$0.73	0.00
Electric	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	Per Building	New	33,322	40	\$58,919	2.0%	100%	\$0.69	0.00

Table F.2. Commercial Electric Measure Details

Fuel Type	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2033 Cumulative Achievable Technical Potential (kWh)
Electric	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	109	25	\$6,483	75%	85%	\$6.02	0.00
Electric	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-30	R-20ci (KY State Code)	Per Building	New	115	25	\$6,483	75%	85%	\$5.70	0.00
Electric	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	5,684	20	\$938	45%	85%	\$0.02	111,115
Electric	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (KY State Code)	Per Building	New	5,998	20	\$938	45%	85%	\$0.02	103,364
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	8,831	10	\$21,666	0.0%	0%	\$0.42	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	8,831	10	\$21,666	0.0%	0%	\$0.42	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	19,136	10	\$21,666	0.0%	0%	\$0.19	0.00
Electric	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	Per Building	New	19,136	10	\$21,666	0.0%	0%	\$0.19	0.00
Electric	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	39,847	25	\$226	80%	90%	\$0.00	2,041,277
Electric	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (KY State Code)	Per Building	New	42,044	25	\$226	80%	90%	\$0.00	1,898,875
Electric	Large Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	316	6	\$0.00	100%	N/A	\$0.00	469,561
Electric	Large Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	Existing	316	6	\$0.00	100%	N/A	\$0.00	480,595
Electric	Large Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	316	6	\$0.00	100%	N/A	\$0.00	71,713
Electric	Large Office	Fax	Fax - ENERGY STAR	ENERGY STAR Fax	Standard Fax	Per Building	New	316	6	\$0.00	100%	N/A	\$0.00	83,550
Electric	Large Office	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	Existing	2,165	4	\$2,435	100%	N/A	\$0.40	0.00
Electric	Large Office	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	2,165	4	\$2,435	100%	N/A	\$0.40	90
Electric	Large Office	Flat Screen Monitors	Monitor - ENERGY STAR	ENERGY STAR Monitor	Standard Monitor	Per Building	New	2,165	4	\$2,435	100%	N/A	\$0.40	125
Electric	Large Office	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	Existing	23	20	\$7	100%	N/A	\$0.04	0.00
Electric	Large Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	65	20	\$7	100%	N/A	\$0.01	27,915
Electric	Large Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	Existing	65	20	\$7	100%	N/A	\$0.01	-505.67976
Electric	Large Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	448	20	\$60	8.8%	100%	\$0.02	71,051
Electric	Large Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	448	20	\$60	8.8%	100%	\$0.02	71,051
Electric	Large Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	529	20	\$60	8.8%	100%	\$0.01	77,100
Electric	Large Office	Freezers	Residential Freezer Recycling	Recycling Existing Freezer	Existing Freezer	Per Building	Existing	529	20	\$60	8.8%	100%	\$0.01	77,100
Electric	Large Office	Freezers	Freezer (Residential) - ENERGY STAR	ENERGY STAR Freezer	Federal Standard 2001 Freezer	Per Building	New	23	20	\$7	100%	N/A	\$0.04	0.00
Electric	Large Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	65	20	\$7	100%	N/A	\$0.01	9,686
Electric	Large Office	Freezers	Freezer (Residential) - Federal Standard 2015	Federal Standard 2015 Freezer	Federal Standard 2001 Freezer	Per Building	New	65	20	\$7	100%	N/A	\$0.01	-65.66058
Electric	Large Office	Heat Pump	Air Source Heat Pump > 240 kBtu/h - High Efficiency	High Efficiency - 10.0 EER, 3.3 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	Existing	19,467	15	\$23,633	100%	N/A	\$0.16	0.00
Electric	Large Office	Heat Pump	Air Source Heat Pump > 240 kBtu/h - Premium Efficiency	Premium Efficiency - 10.5 EER, 3.4 COP	Standard Efficiency - 9.5 EER, 3.2 COP	Per Building	Existing	37,100	15	\$50,261	100%	N/A	\$0.18	0.00