

**Cincinnati, OH; Covington, KY**

Heating Fuel	Heating System	Cooling System	Weight	WHFe
Other	Any except Heat Pump	Any except Heat Pump	0.0029	1.079
		None	0.0002	0
Any	Heat Pump	Heat Pump	0.0760	0.84
Gas Propane Oil	Central Furnace	None	0.0111	0
		Room/Window	0.7571	1.079
		Central AC		1.079
Electricity	Electric baseboard/ central furnace	None	0.0046	0.55
		Room/Window	0.1433	0.64
		Central AC		0.64
None	None	Any	0.0049	1
<b>Total Weighted Average</b>			<b>1</b>	<b>0.9942</b>

The waste heat factor for demand depends on the cooling system type. The HVAC interaction factors for summer peak demand were taken from DOE-2 simulations of the residential prototype building described at the end of this Appendix.

**Cincinnati, OH; Covington, KY**

Cooling System	Weight	WHFd
None	0.0159	1
All other	0.9841	1.17
<b>Total Weighted Average</b>		<b>1.167</b>

**Air Sealing – Reduce Infiltration Measures**

**Gross Summer Coincident Demand Savings**

$$\Delta kW_s = \text{units} \times (\Delta \text{cfm}/\text{unit}) \times (\text{kW} / \text{cfm}) \times DF_s \times CF_s$$

**Gross Annual Energy Savings**

$$\Delta \text{kWh} = \text{units} \times (\Delta \text{cfm}/\text{unit}) \times (\text{kWh} / \text{cfm})$$

$$\Delta \text{therm} = \text{units} \times (\Delta \text{cfm} / \text{unit}) \times (\text{therm} / \text{cfm})$$

where:

- $\Delta kW$  = gross coincident demand savings
- $\Delta kWh$  = gross annual energy savings
- units = number of buildings sealed under the program
- $\Delta \text{cfm}/\text{unit}$  = unit infiltration airflow rate ( $\text{ft}^3/\text{min}$ ) reduction for each measure
- DF = demand diversity factor = 0.8
- CF = coincidence factor = 1.0
- $\text{kW}/\text{cfm}$  = demand savings per unit cfm reduction
- $\text{kWh}/\text{cfm}$  = electricity savings per unit cfm reduction
- $\text{therm}/\text{cfm}$  = gas savings per unit cfm reduction

**Unit cfm savings per measure**

The cfm reductions for each measure were estimated from equivalent leakage area (ELA) change data taken from the ASHRAE Handbook of Fundamentals (ASHRAE, 2001). The equivalent leakage area changes were converted to infiltration rate changes using the Sherman-Grimsrud equation:

$$Q = ELA \times \sqrt{A \times \Delta T + B \times v^2}$$

where:

- A = stack coefficient (ft<sup>3</sup>/min-in<sup>4</sup>-°F)  
= 0.015 for one-story house
- ΔT = average indoor/outdoor temperature difference over the time interval of interest (°F)
- B = wind coefficient (ft<sup>3</sup>/min-in<sup>4</sup>-mph<sup>2</sup>)  
= 0.0065 (moderate shielding)
- v = average wind speed over the time interval of interest measured at a local weather station at a height of 20 ft (mph)

The location specific data are shown below:

Location	Average outdoor temp	Average indoor/outdoor temp difference	Average wind speed (mph)	Specific infiltration rate (cfm/in <sup>2</sup> )
Cincinnati	53	15	8.9	0.86

Measure ELA impact and cfm reductions are as follows:

Measure	Unit	ELA change (in <sup>2</sup> /unit)	ΔCfm/unit
Weather stripping	Linear foot	0.089	0.0766
Caulking	linear foot	0.047	0.0404
Door Sweeps	each	0.3	0.2580
Foam Insulation Spray	sink	0.6	0.5161

**Unit energy and demand savings**

The energy and peak demand impacts of reducing infiltration rates were calculated from infiltration rate parametric studies conducted using the DOE-2 residential building prototype models, as described at the end of this Appendix. The savings per cfm reduction by heating and cooling system type are shown below. These data were weighted according to the HVAC system type weights shown above.

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**Cincinnati, OH; Covington, KY**

Heating Fuel	Heating System	Cooling System	Weight	kWh/cfm	kW/cfm
Other	Any except Heat Pump	Any except Heat Pump	0.0029	1.14	0
		None	0.0002	0	0
Any	Heat Pump	Heat Pump	0.0760	12.85	0.00248
Gas Propane Oil	Central Furnace	None	0.0111	0	0
		Room/Window	0.7571	1.14	0
		Central AC			
Electricity	Electric baseboard/central furnace	None	0.0046	23.27	0.01238
		Room/Window	0.1433	23.84	0.01485
		Central AC			
None	None	Any	0.0049	0	0
Total Weighted Average			1	5.37	0.00237

**Low-Flow Showerhead**

Gross Summer Coincident Demand Savings

$$\Delta kW_s = units \times ISR \times \%Elec \times \frac{(GPD_{base} - GPD_{ee}) \times 8.33 \times \overline{\Delta T}}{3412 \times 24 \times RE} \times DF_x \times CF_s$$

Gross Annual Energy Savings

$$\Delta kWh = units \times ISR \times \%Elec \times \frac{(GPD_{base} - GPD_{ee}) \times 8.33 \times \overline{\Delta T}}{3412 \times RE} \times 365$$

where:

- $\Delta kW$  = gross coincident demand savings
- $\Delta kWh$  = gross annual energy savings
- units = number of units installed under the program
- $GPD_{base}$  = daily hot water consumption before installation
- $GPD_{ee}$  = daily hot water consumption after flow reducing measure installation
- $\Delta T$  = average difference between entering cold water temperature and the shower use temperature
- RE = water heater recovery efficiency (0.98)
- DF = demand diversity factor for electric water heating
- CF = coincidence factor
- 8.33 = conversion factor (Btu/gal-°F)
- 3412 = conversion factor (Btu/kWh)
- 24 = conversion factor (hr/day)
- 365 = conversion factor (days/yr)
- 100000 = conversion factor (Btu/therm)

Showerhead

$$GPD_{base} = \text{showers/week} / 7 \times 2.87 \text{ gpm} \times 5 \text{ minutes/shower}$$

$$GPD_{ee} = \text{showers/week} / 7 \times 1.75 \text{ gpm} \times 5 \text{ minutes/shower}$$

$$\text{Showers/wk} = 10.9 \text{ per showerhead (from survey data)}$$

$\Delta T$

City	Average cold water temperature	Shower use temperature	Average $\Delta T$
Cincinnati/Covington	53.9°F	100°F	46.1°F

Demand diversity factor = 0.1

Coincidence factor = 0.4

The diversity and coincidence factors were taken from *Engineering Methods for Estimating the Impacts of DSM Programs, Volume 2* (EPRI, 1993). These values are typical for the residential water heating end-use in a summer peaking utility.

**Faucet Aerators**

$$\Delta kWh = \text{ISR} * (((\text{GPM}_{base} - \text{GPM}_{low}) / \text{GPM}_{base}) * \# \text{ people} * \text{gals/day} * \text{days/year} * \text{DR}) / \text{F/home}) * 8.3 * (\text{T}_{ft} - \text{T}_{mains}) / 1,000,000) / \text{DHW Recovery Efficiency} / 0.003412$$

Where:

- ISR = In Service Rate or fraction of units that get installed
- GPM<sub>base</sub> = Gallons Per Minute of baseline faucet = 2.2
- GPM<sub>low</sub> = Gallons Per Minute of low flow faucet = 1.5
- # people = Average number of people per household = 2.46
- gals/day = Average gallons per day used by all faucets in home = 10.9
- days/y = Days faucet used per year = 365
- DR = Percentage of water flowing down drain (if water is collected in a sink, a faucet aerator will not result in any saved water) = 50%
- F/home = Average number of faucets in the home = 3.5
- 8.3 = Constant to convert gallons to lbs
- T<sub>ft</sub> = Assumed temperature of water used by faucet = 80
- T<sub>mains</sub> = Assumed temperature of water entering house = 53.9
- DHW Recovery Efficiency = Recovery efficiency of electric hot water heater = 0.98
- 0.003412 = Constant to converts MMBtu to kWh

$$\Delta kW = \Delta kWh/\text{hours} * CF$$

Where:

$$\begin{aligned} \text{Hours} &= \text{Average number of hours per year spent using faucet} \\ &= (\text{Gal/person} * \# \text{ people} * 365) / \text{F/home} / \text{GPM} / 60 \\ &= (10.9 * 2.46 * 365) / 3.5 / 2.2 / 60 \\ &= 21 \text{ hours} \end{aligned}$$

$$\text{CF} = \text{Summer Peak Coincidence Factor for measure} = 0.00262$$

### Hot Water Pipe Wrap

For electric DHW systems:

$$\Delta \text{kWh} = ((1/\text{Rexist} - 1/\text{Rnew}) * (\text{L} * \text{C}) * \Delta \text{T} * 8,760) / \eta_{\text{DHW}} / 3412$$

Where:

$$\text{Rexist} = \text{Pipe heat loss coefficient of uninsulated pipe (existing) (Btu/hr-}^\circ\text{F-ft)} = 1.0$$

$$\text{Rnew} = \text{Pipe heat loss coefficient of insulated pipe (new) (Btu/hr-}^\circ\text{F-ft)} = 5$$

$$\text{L} = \text{Length of pipe from water heating source covered by pipe wrap (ft)}$$

$$\text{C} = \text{Circumference of pipe (ft) (Diameter (in)} * \pi * 0.083) = 0.196\text{ft}$$

$$\Delta \text{T} = \text{Average temperature difference between supplied water and outside air temperature (}^\circ\text{F)} = 65^\circ\text{F}$$

$$8,760 = \text{Hours per year}$$

$$\eta_{\text{DHW}} = \text{Recovery efficiency of electric hot water heater} = 0.98$$

$$3412 = \text{Conversion from Btu to kWh}$$

$$\Delta \text{kW} = \Delta \text{kWh} / 8760$$

Where:

$$\Delta \text{kWh} = \text{kWh savings from pipe wrap installation}$$

$$8760 = \text{Number of hours in a year (since savings are assumed to be constant over year)}.$$

### Water Heater Tank Wrap and Temperature Turn-Down

$$\Delta \text{kWh} = \text{units} * \frac{(\text{UA}_{\text{base}} - \text{UA}_{\text{ew}}) * \overline{\Delta \text{T}}}{3413 * \eta_{\text{elec}}} * 8760$$

$$\Delta \text{kW} = \Delta \text{kWh} / 8760$$

Where:

$$\Delta \text{kW} = \text{gross coincident peak demand savings}$$

$$\Delta \text{kWh} = \text{gross annual electricity savings}$$

$$\text{units} = \text{number of water heaters installed under the program}$$

$$\text{UA}_{\text{base}} = \text{overall heat transfer coefficient of base water heater (Btu/hr-}^\circ\text{F)} = 4.1$$

$UA_{ee}$  = overall heat transfer coefficient of improved water heater (Btu/hr-°F) = 3.3  
 $\Delta T$  = temperature difference between the water inside the tank and the ambient air (°F) = 65  
 3413 = conversion factor (Btu/kWh)  
 8760 = conversion factor (hr/yr)  
 $\eta_{elec}$  = electric water heater recovery efficiency = 0.98  
 $\%Elec$  = 26% of OH and KY homes have electric water heaters. These are the only homes savings electricity (used for temperature turn-down only)

Tank heat loss coefficients estimated from the energy factor:

$$UA = \frac{\frac{1}{EF} - \frac{1}{RE}}{67.5 \times \left( 0.000584 - \frac{1}{RE \times Cap} \right)}$$

where: Cap = tank element heat output = 15,400 Btu/hr

The EF for uninsulated (0.86) and insulated (0.88) tanks were taken from the Draft Ohio TRM.

### HVAC Filter Replacement

$$\Delta kWh = ISR * 1,096 * [(1 + P_{dirty}) - (1 + P_{clean})]$$

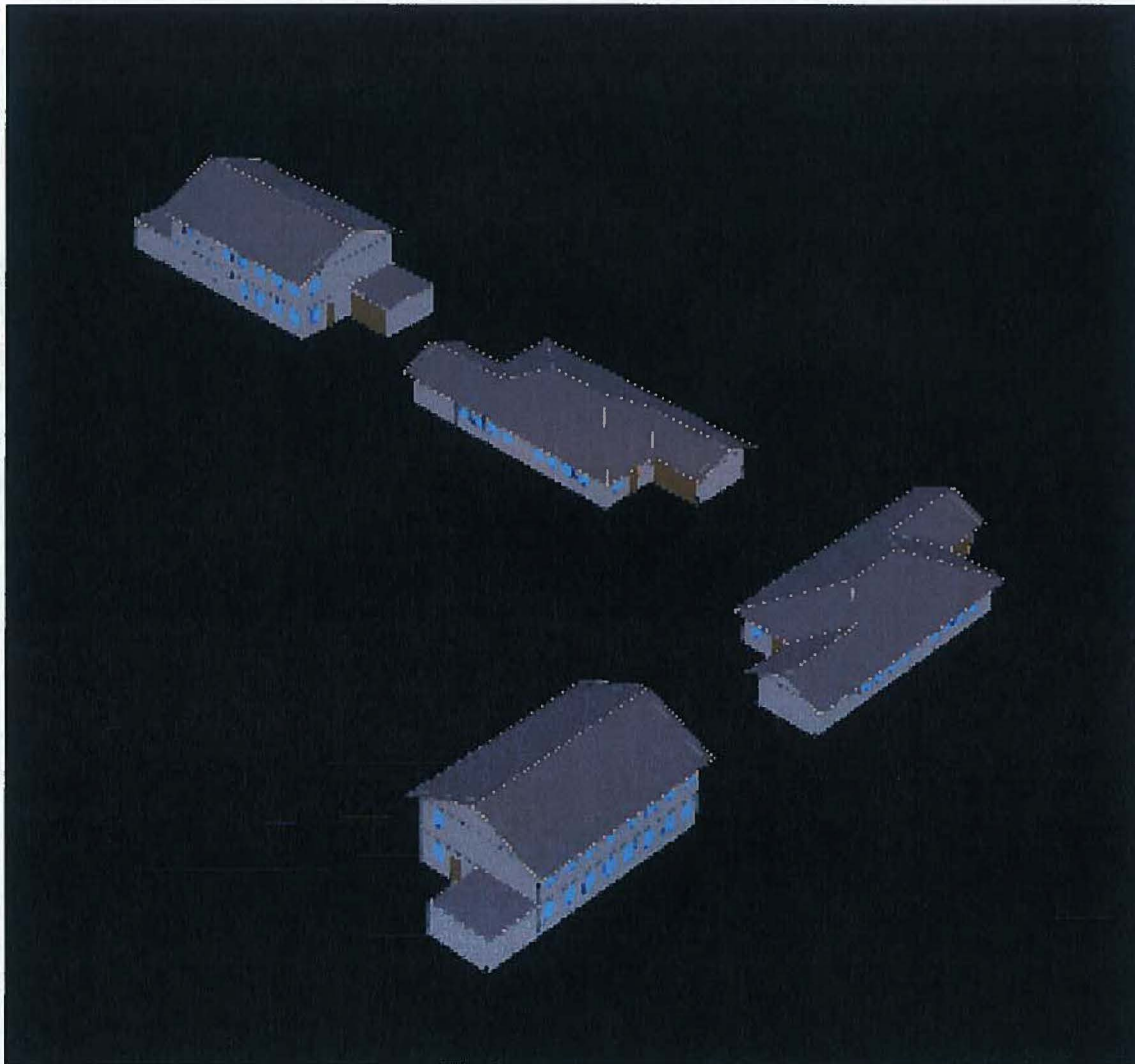
$$\Delta kW = ISR * 500 * P_{clean} / 1000$$

Where:

$\Delta kWh$  = gross annual electricity savings  
 ISR = In Service Rate or fraction of units that get installed  
 1,096 = Annual fan energy consumption  
 500 = Fan wattage  
 $P_{dirty}$  = Percent increase in power consumption after 12 months = 3.9%  
 $P_{clean}$  = Percent increase in power consumption after one month = 0.33%

### Prototypical Building Model Description

The impact analysis for many of the HVAC related measures are based on DOE-2.2 simulations of a set of prototypical residential buildings. The prototypical simulation models were derived from the residential building prototypes used in the California Database for Energy Efficiency Resources (DEER) study (Itron, 2005), with adjustments made for local building practices and climate. The prototype "model" in fact contains 4 separate residential buildings; 2 one-story and 2 two-story buildings. The each version of the 1 story and 2 story buildings are identical except for the orientation, which is shifted by 90 degrees. The selection of these 4 buildings is designed to give a reasonable average response of buildings of different design and orientation to the impact of energy efficiency measures. A sketch of the residential prototype buildings is shown in Figure 10.



**Figure 10. Computer Rendering of Residential Building Prototype Model**

The general characteristics of the residential building prototype model are summarized below:

### Residential Building Prototype Description

Characteristic	Value
Conditioned floor area	1 story house: 1465 SF 2 story house: 2930 SF
Wall construction and R-value	Wood frame with siding, R-11
Roof construction and R-value	Wood frame with asphalt shingles, R-19
Glazing type	Single pane clear
Lighting and appliance power density	0.51 W/SF mean
HVAC system type	Packaged single zone AC or heat pump
HVAC system size	Based on peak load with 20% oversizing. Mean 640 SF/ton
HVAC system efficiency	SEER = 8.5
Thermostat setpoints	Heating: 70°F with setback to 60°F Cooling: 75°F with setup to 80°F
Duct location	Attic (unconditioned space)
Duct surface area	Single story house: 390 SF supply, 72 SF return Two story house: 505 SF supply, 290 SF return
Duct insulation	Uninsulated
Duct leakage	26%; evenly distributed between supply and return
Cooling season	Cincinnati/Covington – April 27 <sup>th</sup> to October 12 <sup>th</sup>
Natural ventilation	Allowed during cooling season when cooling setpoint exceeded and outdoor temperature < 65°F. 3 air changes per hour

### References

Itron, 2005. "2004-2005 Database for Energy Efficiency Resources (DEER) Update Study, Final Report," Itron, Inc., J.J. Hirsch and Associates, Synergy Consulting, and Quantum Consulting. December, 2005. Available at <http://eega.cpuc.ca.gov/deer>



## Appendix D: Management Interview Instrument

We are conducting this interview to obtain your opinions about and experiences with the Residential Neighborhood program. We'll talk about the Residential Neighborhood program and its objectives, your thoughts on improving the program, and the technologies the program covers. The purpose of this study is to capture the program's current operations as well as help identify areas where the program might be improved. Your responses will feed into a report that will be shared with Duke Energy and the state regulatory agency. I want to assure you that the information you share with me will be kept confidential; we will not identify you by name. However, you may provide some information or opinions that could be attributed to you by virtue of your position and role in this program. If there is sensitive information you wish to share, please warn us and we can discuss how best to include that information in the report.

The interview will take about an hour to complete. Do you have any questions for me before we begin?

### Program Background and Objectives

1. Please describe your role and scope of responsibility in detail.
2. How long have you been involved with the program?
3. (PM only) Describe the evolution of the Program. Why was the program created, and has the program changed since it was first started?
4. Have there been any recent changes been made to your duties since you started?
  - a. If YES, please tell us what changes were made and why they were made. What are the results of the change?
5. In your own words, please describe the Program's objectives. (e.g. enrollment, energy savings, non-energy benefits)
6. Can you please walk me through the program's implementation, starting with how the program is marketed and how you target your customers, through how the customer participates?
  - a. Marketing/Targeting: How & Who
  - b. Enrollment/Participation
7. Of the program objectives you mentioned earlier, do you feel any of them will be particularly easy to meet, and why?
8. Which program objectives, if any, do you feel will be relatively difficult to meet, and why?

9. Are there any objectives you feel should be revised prior to the end of this program cycle? If yes, why?

### Vendors

10. Do you use any vendors or contractors to help implement the program?
- What responsibilities do they have?
  - Are there any areas in which think they can improve their services?
11. *(If not captured earlier)* Please explain how activities of the program's vendors, customers and Duke Energy are coordinated.
- Do you think methods for coordination should be changed in any way? If so, how and why?

### Measures/Incentives

12. Describe your quality control and process for tracking participants, shipments, and other program data.
13. Do you believe that the program currently offers the right energy efficient products to meet your customers' needs?
- If not, what products would you like to add?
14. Is the program offering enough of an incentive to motivate your customers to participate?
- If not, what do you think should be changed, and why?

### Vendor Staff Training

15. Describe any program orientation training and development approach you use for the Program.
- How do you ensure that staff are getting adequate program training and updated program information?
  - Can we obtain training materials that are being used?
16. Do you have any suggestions for improving their effectiveness?

### Improvements

17. Are you currently considering any changes to the program's design or implementation?
- What are the changes?

- b. What is the process for deciding whether or not to make these changes?
18. Do you have suggestions for improvements to the program that would increase participation rates, or is Duke Energy happy with the current level of participation?
  19. Do you have suggestions for increasing energy impacts *per participant*, given the same participation rates, or is Duke Energy happy with the current per participant impact?
  20. Overall, what would you say about the program is working really well?
    - a. Is there anything in this program you could highlight as a best practice that other utilities might like to adopt?
  21. What area needs the most improvement, if any?
    - a. (If not mentioned before) What would you suggest can be done to improve this?
  22. Are there any other issues or topics we haven't discussed that you feel should be included in this report?
  23. Do you have any further questions for me about this study or anything else?
  24. Thank you!

# Appendix E: Participant Survey Instrument

Surveyor Name\*

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Survey ID\*

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**State\***

- Kentucky
- Ohio
- North Carolina
- South Carolina

**Measures\***

*You must enter a number for each measure.*

*If you enter 0, no questions will be asked of that measure*

	number
A. AC/Heat Filters Year Supply AND/OR Change Filter Calendar	_____
B. Aerators	_____
C. Caulking Doors	_____
D. Caulking Windows	_____
E. Clear Glass Patch Tape	_____
F. CFL, 13 Watt	_____
G. CFL, 18 Watt	_____
H. Door Sweeps	_____
I. Foam Insulation Spray	_____

	number
J. HVAC Winter Kit for Wall/Window Unit	_____
K. Low-flow Showerheads	_____
L. Switch Plate Wall Thermometer	_____
M. Vinyl Weather Stripping All HVAC Window Units	_____
N. Vinyl Weather Stripping Doors	_____
O. Water Heater Pipe Wrap	_____
P. Water Heater Tank Insulation Wrap	_____
Q. Water Heater Temperature Adjustment	_____

Complete ALL of the above information fields BEFORE calling each customer. The numbers above will be used to determine which questions are asked and imported into some questions.

**Hello, my name is \_\_\_\_\_. I am calling from TecMarket Works on behalf of Duke Energy to conduct a customer survey about the Residential Neighborhood Program. May I speak with \_\_\_\_\_ please?**

*If person talking, proceed. If person is called to the phone reintroduce.*

*If not home, ask when would be a good time to call and schedule the call-back:*

*Interviewer: if the customer you are calling has only a small number of measures installed, tell them the survey will take "about 30 minutes". If they have a larger than average number of measures, tell them the survey will take "45 minutes to an hour". If they have an average/moderate number of measures, then tell them "about 45 minutes" as written below.*

**We are conducting this survey to obtain your opinions about the Residential Neighborhood Program in which your household participated. We are not selling anything. If you complete the survey, we will send you a \$25 check for your time. The survey will take about 45 minutes, sometimes less. Your answers will be confidential, and will help us to make improvements to the program to better serve others. May we begin the survey?**

*for answering machine 1st through penultimate attempts:*

**Hello, my name is [full name] and I am calling from TecMarket Works on behalf of Duke Energy to conduct a customer survey regarding the Residential Neighborhood Program. This program provided free energy assessments and installed energy-saving improvements in your home. I am sorry I missed you. I will try again another time.**

*for answering machine - Final Attempt:*

**Hello, my name is [name] and I am calling from TecMarket Works on behalf of Duke Energy to conduct a customer survey regarding the Residential Neighborhood Program. This program provided free energy assessments and installed energy-saving improvements in your home. This is my last attempt at reaching you, my apologies for any inconvenience.**

**0. Do you still live at [address from calling sheet] ?\***

Yes

No or DK/NS

**1. Do you recall participating in the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

**2. This program was provided through Duke Energy and provided residents in your area with free home energy assessments and, if needed, the free installation of energy-saving home improvements such as insulation, weather stripping, light bulbs, faucet aerators and showerheads. Do you remember participating in this program? \***

- Yes
- No
- DK/NS

*If No or DK/NS terminate interview and go to next participant.  
Click NEXT below to record this disqualification.*

**3. How did you first learn about, or hear about, Duke Energy's Residential Neighborhood Program?\***

*(Check all that apply)*

- Received a letter or postcard in the mail describing the program

**3a. Who sent the letter or postcard?:**

\_\_\_\_\_ \*

- Received a "door hanger" describing the program

**3b. Who left the door hanger?:** \_\_\_\_\_ \*

- Attended a community event promoting the program
- Someone visited my home to tell me about the program

**3c. What organization was this person from?:**

\_\_\_\_\_ \*

- Someone from Duke Energy called to tell me about the program
- Someone else called to tell me about the program

**3d. Specify person/organization:** \_\_\_\_\_ \*

- I called Duke Energy for information or help
- I called someone else for information or help

**3e. Specify person/organization:** \_\_\_\_\_ \*

- Friends, family, or neighbors (word-of-mouth)
- Media (TV, radio, newspapers, news reports, advertising, etc.)

**3f. Specify sources:** \_\_\_\_\_ \*

- Online (Duke Energy or any other websites)

**3g. Specify sites:** \_\_\_\_\_ \*

- Through another agency or organization (Church, CAP, Energy Assistance, etc.)

**3h. Specify organizations:** \_\_\_\_\_ \*

- Some other way

**3i. Specify:** \_\_\_\_\_ \*

- DK/NS

**4. What was the main reason you choose to participate in the Residential Neighborhood Program?\***

*(do not read list, check one response)*

- To save money on utility bills
- To save energy in my home
- To help the environment / "green" reasons
- Friends/neighbors/family encouraged me
- To obtain weatherization services or home repairs
- To make home more comfortable
- For the education and information provided
- For the home energy assessment / audit
- For the energy efficiency measures
- Past experience with another energy efficiency program

*Specify program and sponsor:* \_\_\_\_\_ \*

- Because it was free
- Because it was from Duke Energy
- Other: \_\_\_\_\_ \*
- DK/NS

**4a. Were there any other reasons you chose to participate in this program?\***

*Repeat up to three times or until 'no other reasons' response.*

- No other reason
- To save money on utility bills
- To save energy in my home
- To help the environment / "green" reasons
- Friends/neighbors/family encouraged me
- To obtain weatherization services or home repairs
- To make home more comfortable
- For the education and information provided
- For the home energy assessment / audit
- For the energy efficiency measures
- Past experience with another energy efficiency program

*Specify program and sponsor:* \_\_\_\_\_ \*

- Because it was free
- Because it was from Duke Energy
- Other: \_\_\_\_\_ \*
- DK/NS



**5. We are interested in learning what people understood about how the program operated. Please describe what you understood was required of you as a participant in the program and what you would receive in return for your participation.\***  
*(probe for details and fill in responses below)*

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*Details on Energy Efficiency Items Installed: Only ask questions about the measures that were installed in the respondent's home (see page 1 of survey).*

**Now I'd like to talk about the energy efficiency items that you received for participating in this program.**

CFLs

**17. I'd like to talk about the compact fluorescent light bulbs, also called CFLs, which you received from this program. Our records indicate that you received [question("value"), id="556"] 13-watt CFLs and [question("value"), id="557"] 18-watt CFLs, is this correct?\***

- Yes
- No
- DK/NS

*if no, ask enter zero "0" for DK/NS, but try to get at least a minimum number.\**

	number
17a. How many 13-watt CFLs did you receive?	<hr/> <hr/>
17a. How many 18-watt CFLs did you receive?	<hr/> <hr/>

**18. Next I am going to read six statements. Please tell me which best describes the installation of the CFL light bulbs that were provided to you by this program\***

*(READ BOLDFACE RESPONSES)*

- Did not receive any CFLs
- The auditor installed all of the bulbs and did not leave any extras.**
- The auditor installed some of the bulbs and left some more bulbs, which I installed myself.**
- The auditor installed some of the bulbs and left some extras, which have not been installed.**
- The auditor gave me bulbs and I installed all of them myself.**
- The auditor gave me bulbs and I installed some of them myself, and also have some left over.**
- The auditor gave me bulbs and I have not installed any of them yet.**
- DK/NS

*If participant did not receive CFLs, skip to next measure.*

*If uninstalled CFLs remain, ask q19 and subsequent questions about uninstalled bulbs.*

**19a. How many 13-watt CFLs do you have which have not been installed yet?:\***

- 0
- 1 or more *Specify number*: : \_\_\_\_\_ \*
- DK/NS

**19b. How many 18-watt CFLs do you have which have not been installed yet?:\***

- 0
- 1 or more *Specify number*: : \_\_\_\_\_ \*
- DK/NS

*Continue with Q20a-Q20g only if they have one or more spare bulbs in q19a or Q19b; otherwise skip ahead to Q21.*

**20a. What have you done with the remaining CFLs that were not installed?\***

*(check all that apply)*

- Put them in storage / closet / shelf
- Gave them away
- Threw them out / Recycled them
- Other *specify what was done and to how many bulbs*: \_\_\_\_\_ \*
- DK/NS

*If "Gave them away", ask Q20b-c:\**

**20b. You said you gave away some of the bulbs. To whom did you give them?:**

\_\_\_\_\_

**20c. How many did you give away?:**

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*If "threw out / recycled", ask:*

**20d. How many bulbs did you throw away or recycle?\***

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*If "put them in storage", ask:*

**20e. How many bulbs that you received from this program do you currently have stored for future use?\***

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**20f. Do you plan on eventually installing and using all of the free CFLs that you were provided through this program?\***

- Yes
- No
- Maybe
- DK/NS

*If "yes", skip ahead to q20i*

*If "no" to Q20f, ask Q20g and then SKIP AHEAD TO Q21:*

**20g. Why not?\***

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*If "maybe" or "DK/NS" to Q20f, ask:*

**20h. Why are you not sure you will use them all?\***

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*If "Yes, maybe or DKNS" in Q20f*

**20i. How long do you think it will be before you will have installed all of the free bulbs you received from the Duke Energy program?\***

- 1 year or less
- 13 to 24 months (2 years)
- 25 to 36 months (3 years)
- 37 to 48 months (4 years)
- 49 to 60 months (5 years)
- More than 5 years
- Never
- DK/NS

**q21. 1st Installed Bulb<sup>40</sup>**

*INTERVIEWER: record answers for up to three CFLs installed by the program; if they installed fewer than three CFLs, ask about one or two bulbs as appropriate.*

**Now I'm going to ask you about three of the bulbs you put into light fixtures...**

*1st Installed Bulb - 18 watt*

**21. For the first CFL, please tell me about one of the 18-watt bulbs that was installed; that is, the brighter, higher-wattage bulbs that were installed. In which room was this bulb installed?\***

- Living/family room
- Dining room
- Kitchen
- Master bedroom
- Bedroom 2
- Bedroom 3 or other bedroom
- Hall
- Closet
- Basement
- Garage
- Bathroom
- Other: \_\_\_\_\_ \*

---

<sup>40</sup> Two repetitive survey sections are not shown in this appendix; the versions of Q21 through Q23 shown here are for customers who received both 13-watt and 18-watt CFLs. For computer-assisted survey programming purposes, there are alternate versions of these same questions which are asked for customers who received only one wattage of bulb (a series for 13-watt bulbs and a series for 18-watt bulbs). These alternate versions of the questions are identical to the versions shown in this appendix except for the wattages of bulbs mentioned (customers who only received 13-watt bulbs are not asked about 18-watt bulbs and vice versa).

**21a. Are you sure this bulb that was installed by the Residential Neighborhood Program was an 18-watt bulb?\***

- Yes, it is an 18-watt bulb
- No, it is a 13-watt bulb
- DK/NS

*If "No, it is a 13-watt bulb ", ask them to pick an 18-watt bulb and go back to Q21; if they cannot, then check "No, it is a 13-watt bulb" and continue*

*If "DK/NS (don't know/not sure)", ask them if there are any installed bulbs that they know for sure are 18-watt bulbs and go back to Q21; if they cannot, then check "DK/NS" and continue.*

**21b. Was the bulb that was previously installed in this fixture or lamp a standard bulb or a CFL?\***

- Standard Incandescent
- CFL
- Other: \_\_\_\_\_ \*
- There was no bulb in the socket
- DK/NS

**21c. How many watts was the old bulb that was removed?\***

- Less than 44
- 45-70
- 71-99
- 100 or more
- DK/NS

**21d. What happened to the old bulb that was removed?\***

- Recycled It
- Threw it away
- Stored it
- Auditor took it with them
- Other: \_\_\_\_\_ \*
- DK/NS

**21e. On average, approximately how many hours per day is this light used?\***

- Less than 1
- 1 to 2
- 3 to 4
- 5 to 10
- 11 to 12
- 13 to 24
- DK/NS

**21f. Did the hours of use for this fixture increase, decrease or stay the same since the old bulb was replaced with the CFL?\***

- Increased  
 Decreased  
 Stayed the same  
 DK/NS

*If Increased ask*

**21g. How many hours per day more?\***

---

*If decreased, ask*

**21h. How many hours per day less?\***

---

*2nd Installed Bulb - 13 watt*

**22. Please tell me about one of the 13-watt bulbs that was installed; that is, the less-bright, lower-wattage bulbs that were installed. In which room was this bulb installed?\***

- Living/family room  
 Dining room  
 Kitchen  
 Master bedroom  
 Bedroom 2  
 Bedroom 3 or other bedroom  
 Hall  
 Closet  
 Basement  
 Garage  
 Bathroom  
 Other: \_\_\_\_\_ \*

**22a. Are you sure this bulb that was installed by the Residential Neighborhood Program was an 13-watt bulb?\***

- Yes, it is an 13-watt bulb  
 No, it is a 18-watt bulb  
 DK/NS

*If "No, it is an 18-watt bulb", ask them to pick a 13-watt bulb and go back to Q22; if they cannot, then check "No, it is an 18-watt bulb" and continue.*

*If "DK/NS", ask them if there are any installed bulbs that they know for sure are 13-watt bulbs and go back to Q22; if they cannot, then check "DK/NS" and continue.*

**22b. Was the bulb that was previously installed in this fixture or lamp a standard bulb or a CFL?\***

- Standard Incandescent
- CFL
- Other: \_\_\_\_\_ \*
- There was no bulb in the socket
- DK/NS

**22c. How many watts was the old bulb that was removed?\***

- Less than 44
- 45-70
- 71-99
- 100 or more
- DK/NS

**22d. What happened to the old bulb that was removed?\***

- Recycled It
- Threw it away
- Stored it
- Auditor took it with them
- Other: \_\_\_\_\_ \*
- DK/NS

**22e. On average, approximately how many hours per day is this light used?\***

- Less than 1
- 1 to 2
- 3 to 4
- 5 to 10
- 11 to 12
- 13 to 24
- DK/NS

**22f. Did the hours of use for this fixture increase, decrease or stay the same since the old bulb was replaced with the CFL?\***

- Increased
- Decreased
- Stayed the same
- DK/NS

*If Increased ask*

**22g. How many hours per day more?\***

---

*If decreased, ask*

**22h. How many hours per day less?\***

---

*3rd Installed Bulb - either 18-watt or 13-watt*

*Note: let customer choose which bulb to discuss, depending upon what they received.*

**23. For the third CFL, please choose either a 13-watt or 18-watt bulb that was installed in your home. In which room was this bulb installed?\***

- Living/family room
- Dining room
- Kitchen
- Master bedroom
- Bedroom 2
- Bedroom 3 or other bedroom
- Hall
- Closet
- Basement
- Garage
- Bathroom
- Other: \_\_\_\_\_ \*

**23a. Was this bulb that was installed one of the 13 watt bulbs or one of the 18 watt bulbs?\***

- 13 watt
- 18 watt
- DK/NS

*If "DK/NS", ask them if they can choose another bulb where they do know the wattage and go back to Q23; if they cannot identify the wattage of any other bulbs, check "DK/NS" and continue.*

**23b. Was the bulb that was previously installed in this fixture or lamp a standard bulb or a CFL?\***

- Standard Incandescent
- CFL
- Other: \_\_\_\_\_ \*
- There was no bulb in the socket
- DK/NS



**23c. How many watts was the old bulb that was removed?\***

- Less than 44
- 45-70
- 71-99
- 100 or more
- DK/NS

**23d. What happened to the old bulb that was removed?\***

- Recycled It
- Threw it away
- Stored it
- Auditor took it with them
- Other: \_\_\_\_\_ \*
- DK/NS

**23e. On average, approximately how many hours per day is this light used?\***

- Less than 1
- 1 to 2
- 3 to 4
- 5 to 10
- 11 to 12
- 13 to 24
- DK/NS

**23f. Did the hours of use for this fixture increase, decrease or stay the same since the old bulb was replaced with the CFL?\***

- Increased
- Decreased
- Stayed the same
- DK/NS

*If Increased ask*

**23g. How many hours per day more?\***

\_\_\_\_\_

*If decreased, ask*

**23h. How many hours per day less?\***

\_\_\_\_\_

**24. How many standard incandescent bulbs do you have in storage to replace bulbs that burn out?\***

- None
- One or more (*record number*): \_\_\_\_\_ \*
- DK/NS

*If they have one or more incandescent bulbs in storage in Q24, ask Q24a:*

**24a. If one of the free CFLs that was installed through the Residential Neighborhood Program burns out, will you replace it with an incandescent bulb, another CFL, or some other type of bulb?\***

*(check all that apply)*

- CFL
- Incandescent bulb
- Halogen
- LED
- It depends on which socket burns out (or other factors)
- DK/NS

*If "It depends on which socket burns out (or other factors)", ask:*

**24b. Why do you say that?\***

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**25. Have you removed any of the CFLs that were installed through the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*If Yes to q25, ask 25a, 25b and 25c*

**25a. How many?\***

---

**25b. Why did you remove them?\***

*(Select all that apply)*

- Not bright enough
- Did not like the color of the light
- The light was too bright
- Too slow to start
- Burned out
- Not working properly
- Did not like appearance/shape of the bulbs
- Other *specify* : \_\_\_\_\_ \*

**25c. What are the wattages of the bulbs you removed?\***

*(Enter the number of bulbs disposed for each wattage – the total number of bulbs should match Q25a)*

# of 13-watt bulbs: \_\_\_\_\_

# of 18-watt bulbs: \_\_\_\_\_

# of DK/NS bulbs: \_\_\_\_\_

**26. On a scale of 1 to 10 with 1 being very dissatisfied and 10 being very satisfied, please rate your satisfaction with the free CFLs bulbs you received.\***

1    2    3    4    5    6    7    8    9    10    DK/NS

*If 7 or less*

**26a. Why were you less than satisfied with the CFLs?\***

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Q27 bulb descriptions if needed:*

**Incandescent bulbs are the most common type of light bulb. It features a screw-base and is known for providing bright, warm light instantly.**

**Halogen light bulbs are similar to incandescent bulbs, but are known to be more energy-efficient than standard incandescent bulbs; they tend to be used in indoor and outdoor flood lighting, indoor recessed lighting, tracked lighting, and in floor and desk lamps.**

**CFLs, also known as compact fluorescent light bulbs, are energy-saving light bulbs that have a “twisty” shape, like a soft-serve ice cream cone.**

**LEDs, also known as “light-emitting diodes”, are a type of lighting that uses multiple tiny bulbs, or diodes, that are wired together on one lamp.**

**27. Currently, there are a number of types of light bulbs available for purchase in the market, like CFL bulbs, Halogen bulbs, standard incandescent bulbs, and LED bulbs among others. Thinking about the next ten light bulbs you will purchase, how many will be...\***

*Interviewer: read descriptions of the types of bulb if respondents seem unclear on anything about them.*

*Total MUST equal 10. use DK/NS to balance total if needed*

- \_\_\_\_\_ **Standard incandescent light bulbs**
- \_\_\_\_\_ **Halogen light bulbs**
- \_\_\_\_\_ **CFL light bulbs**
- \_\_\_\_\_ **LED light bulbs**
- \_\_\_\_\_ **“Other” bulb types**
- \_\_\_\_\_ **DK/NS**

*27a. if “other” is more than Zero, specify what “other” type(s) of bulb.*

**28. Did you have any CFLs installed in your home before receiving CFL bulbs from the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*If yes to Q28, ask Q28a to Q28c:*

**28a. How many?\***

**28b. Where did you get the CFLs you were using in your home before receiving the bulbs from the Residential Neighborhood Program?\***

(Do not read list, check all that apply)

Assistance office (CAP Agency, Energy Assistance Program)

Another Duke Energy program *Ask: What program?:* \_\_\_\_\_ \*

A program from a company other than Duke Energy *Ask: What program?:* \_\_\_\_\_ \*

Purchased at a store *Ask: What store?:* \_\_\_\_\_ \*

Some other way *Ask: What way?:* \_\_\_\_\_ \*

DK/NS

**28c. How many years have you been using CFLs?\***

Never used until recently (first time user)

1 year or less (but not first time)

1 to 2 years

2 to 3 years

3 to 4 years

4 or more years

Other *specify:* \_\_\_\_\_ \*

DK/NS

**28d. Do you currently have any CFL bulbs in storage to replace bulbs that burn out?\***

None

One or more *record number:* \_\_\_\_\_ \*

DK/NS

**28e. How many of these spare CFL bulbs that you currently have in storage are CFLs that you received from the Residential Neighborhood Program? Please include any spare bulbs the auditor left behind, and any bulbs installed by you or the auditor that may have been removed.\***

None

One or more *record number:* \_\_\_\_\_ \*

DK/NS

**29a. Were you planning on buying CFLs for your home before you received light bulbs from the Residential Neighborhood Program?\***

Yes

No

Maybe

DK/NS

No, already have them installed in all available sockets

**29b. Have you purchased any additional CFLs since receiving some from the Residential Neighborhood Program?\***

- Yes 29c. How Many?: \_\_\_\_\_ \*
- No
- DK/NS

**30. Before you received the free CFLs from the Residential Neighborhood Program, did you have any LED light bulbs installed in your home?\***

- Yes
- No
- DK/NS

*If yes to Q30, ask Q30a, b, c and d*

**30a. How many?\***

\_\_\_\_\_

**30b. Where did you get the LEDs were you using in your home before receiving CFLs from the Residential Neighborhood Program?\***

*(Do not read list, check all that apply)*

- Assistance office (CAP Agency, Energy Assistance Program)
- Another Duke Energy program :

\_\_\_\_\_ \*

- A program from a company other than Duke Energy :

\_\_\_\_\_ \*

- Purchased at a store : \_\_\_\_\_ \*
- Some other way : \_\_\_\_\_ \*

DK/NS

**30c. How many years have you been using LEDs?\***

- Have never used LED light bulbs at all
- Never used until recently (first time user)
- 1 year or less (but not first time)
- 1 to 2 years
- 2 to 3 years
- 3 to 4 years
- 4 or more years
- Other: \_\_\_\_\_ \*
- DK/NS

**30d. Do you have any LED bulbs in storage to replace bulbs that burn out?\***

- None
- One or more *record number*: \_\_\_\_\_ \*
- DK/NS

**31. Were you planning on buying LEDs for your home before you received the CFL bulbs from the Residential Neighborhood Program?\***

- Yes
- No
- No, already have LEDs installed in all available sockets
- Maybe
- Don't Know

LFS. Low-flow Showerhead

**LFS-1. Did you or the auditor install any low-flow showerheads provided through the program?\***

- Yes, I installed
- Yes, auditor installed
- No, I received a showerhead, but it has not been installed yet
- No, I did not receive a showerhead
- DK/NS

*If "No" or "DK/NS" skip to next measure.*

*If "yes, I installed"*

**LFS-1a. Was it easy to install?\***

- Yes
- No
- DK/NS

*If "no, I received but did not install"*

**LFS-1b. Do you plan on using this item?\***

- Yes
- No
- DK/NS

*If "no" or "DK/NS"*

**LFS-1c. Why not?\***

*If "yes, I installed" or "yes, auditor installed" in LFS-1, ask LFS-2 to LFS-4:*

**LFS-2a. How many low-flow showerheads did you receive from the Residential Neighborhood Program?\***

- 1
- 2
- 3 or more: \_\_\_\_\_ \*

**LFS-2b. Have any of the low-flow showerheads that were installed through the Residential Neighborhood Program since been uninstalled or removed?\***

- Yes, one uninstalled  
 Yes, two uninstalled  
 No, all showerheads are still currently installed  
 other: \_\_\_\_\_ \*  
 DK/NS

*If "yes" to LFS-2b, ask LFS-2c-d:*

**LFS-2c. Why were the low-flow showerheads removed?\*****LFS-2d. Who removed them?\***

*Interviewer: answer LFS-2e., based on previous responses (# of units installed in 2a, minus units removed in 2b).*

*This is not a question for participant.*

*LFS-2e. Number of low-flow showerheads provided by the program which are currently installed in the home\**

- 0  
 1  
 2

*If "one" in LFS-2e., ask LFS-3a:*

**LFS-3a. Typically how many showers per week are taken using this showerhead?\***

- 0 to 4  
 5 to 10  
 11 to 15  
 16 to 20  
 21 or more  
 DK/NS

*If "two" in LFS-2e., ask LFS-3b-c:*

**LFS-3b. Typically how many showers per week are taken using the showerhead that gets used most often?\***

- 0 to 4  
 5 to 10  
 11 to 15  
 16 to 20  
 21 or more  
 DK/NS



If "two" in LFS-2e., ask LFS-3b-c:

**LFS-3c. And how many showers per week are typically taken using the second showerhead?\***

- 0 to 4
- 5 to 10
- 11 to 15
- 16 to 20
- 21 or more
- DK/NS

If "one" in LFS-2e., ask LFS-3d:

**LFS-3d. Would you estimate that the amount of water coming out of this showerhead is...\***

- Less than it was with the old showerhead
- About the same as with the old showerhead
- More than with the old showerhead

If "two" in LFS-2e., ask LFS-3e-f:

**LFS-3e. For the showerhead that gets used most often, would you estimate that the amount of water coming out of this showerhead is...\***

- Less than it was with the old showerhead
- About the same as with the old showerhead
- More than with the old showerhead

**LFS-3f. For the second showerhead, would you estimate that the amount of water coming out of this showerhead is...\***

- Less than it was with the old showerhead
- About the same as with the old showerhead
- More than with the old showerhead

Everyone continues with LFS-4:

**LFS-4. On a scale from 1-10, with 1 indicating that you were very dissatisfied, and 10 indicating that you were very satisfied, please rate your satisfaction with the low-flow showerhead(s).\***

- 1    2    3    4    5    6    7    8    9    10    DK/NS

If 7 or less in LFS-4, ask LFS-4a:

**LFS-4a. Why were you less than satisfied with the low-flow showerhead?\***

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**LFS-4b. Did you have any low-flow showerheads installed in your home before participating in the Residential Neighborhood Program?\***

Yes

**LFS-4c. How many? :** \_\_\_\_\_ \*

No

DK/NS

**LFS-4d. Were you planning on buying a new low-flow showerhead for your home before participating in the Residential Neighborhood Program?\***

Yes

No

Maybe

DK/NS

No, already have them installed in all showers

**LFS-4e. Have you purchased any additional low-flow showerheads since participating in the Residential Neighborhood Program?\***

Yes

**LFS-4f. How many? :** \_\_\_\_\_ \*

No

DK/NS

FA. Faucet Aerators

**FA-1. Did you or the auditor install any faucet aerators provided through the program?\***

- Yes, I installed
- Yes, auditor installed
- No, I received aerator(s) but they have not been installed yet
- No, I did not receive aerator(s)
- DK/NS

*If "No" or "DK/NS", skip to next measure.*

*If "yes, I installed"*

**FA-1a. Was it easy to install?\***

- Yes
- No
- DK/NS

*If "no, I received but did not install"*

**FA-1b. Do you plan on using this item?\***

- Yes
- No
- DK/NS

*If "no" or "DK/NS"*

**FA-1c. Why not?\***

---

*If "yes, I installed" or "yes, auditor installed" in FA-1, ask FA-2a, FA-3a and FA-4a (and any applicable follow-up questions), then continue from FA-5:*

**FA-2a. How many aerators were installed on faucets in your kitchen?\***

- 0
- 1
- 2
- 3
- DK/NS

*If "one or more" in FA-2a, ask FA-2b-g:*

**FA-2b. Did the faucets in your kitchen already have aerators on them that had to be removed before installing the aerators provided by the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*If YES in FA-2b and "two" or "three" in FA-2a then ask:*

**FA-2c. How many old aerators were removed?\***

---

**FA-2d. Have any of the kitchen aerators that were installed through the Residential Neighborhood Program since been uninstalled or removed?\***

- Yes, one uninstalled
- Yes, two uninstalled
- Yes, three uninstalled
- No, all kitchen aerators are still currently installed
- DK/NS

*If "yes" to FA-2d, ask FA-2e-f*

**FA-2e. Why were the kitchen aerators removed?\***

---

**FA-2f. Who removed them?\***

---

**FA-2g. Would you estimate that the amount of water coming out of your kitchen faucets with newly-installed aerators is...\***

- Less than before installing the aerator
- About the same as before installing the aerator
- More than before installing the aerator
- DK/NS

**FA-3a. How many aerators were installed on faucets in your bathroom(s)?\***

- 0
- 1
- 2
- 3
- DK/NS

*If "one or more" in FA-3a, ask FA-3b-g:*

**FA-3b. Did the faucets in your bathroom already have aerators on them that had to be removed before installing the aerators provided by the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*If YES to 3b and "two" or "three" in FA-3a then ask:*

**FA-3c. How many old aerators were removed?**

---

**FA-3d. Have any of the bathroom aerators that were installed through the Residential Neighborhood Program since been uninstalled or removed?\***

- Yes, one uninstalled
- Yes, two uninstalled
- Yes, three uninstalled
- No, all bathroom aerators are still currently installed
- DK/NS

*If "yes" to FA-2d, ask FA-2e-f*

**FA-3e. Why were the bathroom aerators removed?\***

---

**FA-3f. Who removed them?\***

---

**FA-3g. Would you estimate that the amount of water coming out of your bathroom faucets with newly-installed aerators is...\***

- Less than before installing the aerator
- About the same as before installing the aerator
- More than before installing the aerator
- DK/NS

**FA-4a. How many aerators were installed on faucets in your home in places other than the kitchen and bathroom?\***

- 0
- 1
- 2
- 3
- DK/NS

*If "one or more" in FA-4a, ask FA-4b to h:*

**FA-4b. In which room(s) was this (were these) aerator(s) installed?\***

---

**FA-4c. Did the faucets located in rooms other than bathrooms and the kitchen already have aerators on them that had to be removed before installing the aerators provided by the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*if Yes:*

**FA-4d. How many old aerators were removed?\***

---

**FA-4e. Have any of the aerators that were installed someplace other than a bathroom or kitchen been uninstalled or removed?\***

- Yes, one uninstalled
- Yes, two uninstalled
- Yes, three uninstalled
- No, all aerators are still currently installed
- DK/NS

*If "yes" to FA-4e, ask FA-4f-g:*

**FA-4f. Why were the aerators removed?\***

\_\_\_\_\_

**FA-4g. Who removed them?\***

\_\_\_\_\_

**FA-4h. Would you estimate that the amount of water coming out of these faucets with newly-installed aerators is...\***

- Less than before installing the aerator
- About the same as before installing the aerator
- More than before installing the aerator
- DK/NS

**FA-5. On a scale from 1-10, with 1 indicating that you were very dissatisfied, and 10 indicating that you were very satisfied, please rate your satisfaction with the faucet aerators.\***

- 1     2     3     4     5     6     7     8     9     10     DK/NS     N/A

*If 7 or less in LFS-4, ask LFS-4a:*

**FA-5a. Why were you less than satisfied with the aerator(s)?\***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**FA-5b. Did you have any faucet aerators installed in your home before you received some from the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*If YES, ask:*

**FA-5c. How many aerators were in your home, and in which rooms were they located?\***

\_\_\_\_\_

**FA-5d. Were you planning on buying any faucet aerators for your home before you received some from the Residential Neighborhood Program?\***

- Yes
- No
- Maybe
- DK/NS
- No, already have them installed in all available faucets

**FA-5e. Have you purchased any additional faucet aerators since receiving aerators from the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

*If YES, ask:*

**FA-5f. How many?\***

---

*FIS. Foam Insulation Spray*

**FIS-1. Did you or the auditor install any foam insulation spray provided through the program?\***

- Yes, I installed
- Yes, auditor installed
- No, I received foam insulation spray but it has not been installed yet
- No, I did not receive foam insulation spray
- DK/NS

*If "No, I did not receive" or "DK/NS" skip to next measure.*

*if "Yes, I installed" in FIS-1, ask FIS-1a*

**FIS-1a. Was it easy to install?\***

- Yes
- No
- DK/NS

*If "no, I received but did not install" in FIS-1, ask FIS-1b:*

**FIS-1b. Do you plan on using the foam insulation spray?\***

- Yes
- No
- DK/NS

If "no" or "DK/NS" in FIS-1b, ask FIS-1c:

**FIS-1c. Why not?\***

\_\_\_\_\_

If "yes, I installed" or "yes, auditor installed" in FIS-1, ask QFIS-2a-QFIS-3e:

**FIS-2a. Where in your home was the foam insulation spray used?\***

\_\_\_\_\_

**FIS-2b. Do you know how much foam insulation spray was used?\***

- Yes specify: \_\_\_\_\_ \*
- No or DK/NS

**FIS-2c. Did the installer from the Residential Neighborhood Program leave you with any extra foam insulation spray that was not installed at the time?\***

- Yes
- No
- DK/NS

**FIS-2d. Has any of the foam insulation spray provided by the Residential Neighborhood Program been removed from where it was installed?\***

- Yes
- No, all installations are still in place
- DK/NS

If "yes" to QFIS-2d, ask QFIS-2e-g:

**FIS-2e. How much of the foam insulation spray was removed? Would you say . . .\***

- All of it,
- Most of it,
- Some of it, or
- Only a small portion?
- DK/NS

**FIS-2f. Why was the foam insulation spray removed?\***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**FIS-2g. Who removed it?\***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**FIS-3. On a scale from 1-10, with 1 indicating that you were very dissatisfied, and 10 indicating that you were very satisfied, please rate your satisfaction with the foam insulation spray.\***

- 1    2    3    4    5    6    7    8    9    10    DK/NS

*If 7 or less in QFIS-3, ask QFIS-3a:*

**FIS-3a. Why were you less than satisfied with the foam insulation spray?\***

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**FIS-3b. Did you have foam insulation spray installed in your home before participating in the Residential Neighborhood Program?\***

- Yes  
 No  
 DK/NS

**FIS-3c. Were you planning on buying any foam insulation spray for your home before participating in the Residential Neighborhood Program?\***

- Yes  
 No  
 Maybe  
 DK/NS  
 No, already installed every place possible

**FIS-3d. Have you purchased any additional foam insulation spray since participating in the Residential Neighborhood Program?\***

- Yes  
 No  
 DK/NS

*If YES, ask:*

**FIS-3e. How many cans did you purchase?\***

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WSD. Vinyl Weather Stripping – Doors

**WSD-1. Did you or the auditor install any foam vinyl weather stripping tape, provided through the program, around doors?\***

*If participant is uncertain about what this is, explain that it is a foam “spongy” peel and stick tape that goes around doors.*

- Yes, I installed
- Yes, auditor installed
- No, I received weather stripping tape for doors, but it has not been installed yet
- No, I did not receive weather stripping tape for doors
- DK/NS

*If “No, I did not receive” or “DK/NS” skip to next measure.*

*If “yes, I installed” in WSD-1, ask WSD-1a:*

**WSD-1a. Was it easy to install?\***

- Yes
- No
- DK/NS

*If “no, I received but did not install” in WSD-1, ask WSD-1b:*

**WSD-1b. Do you plan on using this item?\***

- Yes
- No
- DK/NS

*If “no” or “DK/NS” in WSD-1b, ask WSD-1c:*

**WSD-1c. Why not?\***

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*If “yes, I installed” or “yes, auditor installed” in WSD-1, ask WSD-2a-WSD-3f:*

**WSD-2a. How many doors in your home were weather stripped with the foam vinyl tape provided by the Residential Neighborhood Program?\***

- One or more *specify number of doors:*

\*

- 
- None
  - DK/NS

**WSD-2b. Has the foam vinyl tape provided by the Residential Neighborhood Program been removed from any of the doors where it was installed?\***

- Yes
- No, all installations are still in place
- DK/NS

If "yes" to WSD-2b, ask WSD-2c-e:

**WSD-2c. How many doors had the foam vinyl weather stripping tape installed but then removed?\***

\_\_\_\_\_

**WSD-2d. Why was the weather stripping tape removed?\***

\_\_\_\_\_

**WSD-2e. Who removed it?\***

\_\_\_\_\_

**WSD-3. On a scale from 1-10, with 1 indicating that you were very dissatisfied, and 10 indicating that you were very satisfied, please rate your satisfaction with weather stripping tape for doors.\***

1    2    3    4    5    6    7    8    9    10    DK/NS

If 7 or less in WSD-3, ask WSD-3a:

**WSD-3a. Why were you less than satisfied with the weather stripping tape for doors?\***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**WSD-3b. Did you have any weather stripping tape installed around doors in your home before you received some from the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

If YES, ask:

**WSD-3c. For how many doors?\***

\_\_\_\_\_

**WSD-3d. Were you planning on buying any weather stripping tape for your home's doors before you received some from the Residential Neighborhood Program?\***

- Yes
- No
- Maybe
- DK/NS
- No, already have tape installed around all available doors

**WSD-3e. Have you purchased any additional weather stripping tape for doors since receiving some from the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS

If YES, ask:

**WSD-3f. For how many doors?\***

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WW. Vinyl Weather Stripping – HVAC window units

**WW-1. Did you or the auditor install any foam vinyl weather stripping tape, provided through the program, around window air conditioning units?\***

*If participant is uncertain about what this is, explain that it is a foam “spongy” peel and stick tape that goes around their air conditioners.*

- Yes, I installed
- Yes, auditor installed
- No, I received weather stripping tape for window A/C but it has not been installed yet
- No, I did not receive weather stripping tape for window A/C
- DK/NS

*If “No, I did not receive” or “DK/NS” skip to next measure.*

*If “yes, I installed” in WW-1, ask WW-1a:*

**WW-1a. Was it easy to install?\***

- Yes
- No
- DK/NS

*If “no, I received but did not install” in WW-1, ask WW-1b:*

**WW-1b. Do you plan on using this item?\***

- Yes
- No
- DK/NS

*If “no” or “DK/NS” in WW-1b, ask WW-1c:*

**WW-1c. Why not?\***

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If "yes, I installed" or "yes, auditor installed" in WW-1, ask WW-2a-WW-3f:

**WW-2a. How many windows in your home with A/C units were weather stripped with the foam vinyl tape provided by the Residential Neighborhood Program?\***

One or more, specify number of windows:

\_\_\_\_\_ \*

- None
- DK/NS

**WW-2b. Has the foam vinyl tape provided by the Residential Neighborhood Program been removed from any of the window A/C units where it was installed?\***

- Yes
- No, all installations are still in place
- DK/NS

If "yes" to WW-2b, ask WW-2c-e:

**WW-2c. How many window A/C units had the foam vinyl weather stripping tape installed but then removed?\***

\_\_\_\_\_

**WW-2d. Why was the weather stripping tape removed?\***

\_\_\_\_\_

**WW-2e. Who removed it?\***

\_\_\_\_\_

**WW-3. On a scale from 1-10, with 1 indicating that you were very dissatisfied, and 10 indicating that you were very satisfied, please rate your satisfaction with the weather stripping tape for window air conditioning units.\***

- 1    2    3    4    5    6    7    8    9    10    DK/NS

If 7 or less in WW-3, ask WW-3a:

**WW-3a. Why were you less than satisfied with the weather stripping tape for window air conditioning units?\***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**WW-3b. Did you have any weather stripping tape installed around windows with A/C units in your home before you received some from the Residential Neighborhood Program?\***

- Yes
- No
- DK/NS