Goss ▪ Samford PLLC
Attorneys at Law

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AUG 12 2015
PUBLIC SERVICE COMMISSION

David S. Samford
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(859) 368-7740

August 12, 2015

Via Hand-Delivery

Mr. Jeffrey Derouen
Executive Director
Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, KY 40602

Re: In the Matter of: The 2015 Integrated Resource Plan
of East Kentucky Power Cooperative, Inc.
PSC Case No. 2015-00134

Dear Mr. Derouen:

Enclosed please find for filing with the Commission in the above-referenced case an original and ten (10) copies of East Kentucky Power Cooperative, Inc.'s Responses to PSC Staff's Initial Set of Data Requests. Please return a file-stamped copy to me.

Do not hesitate to contact me if you have any questions.

Very truly yours,

David S. Samford

Enclosures

M:\Clients\4000 - East Kentucky Power\8850 - 2015 Integrated Resource Plan\Correspondence\Ltr. to Jeff Derouen - 150812.docx

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AUG 1 2 2015

PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	) CASE NO.) 2015-00134

RESPONSES TO COMMISSION STAFF'S FIRST INFORMATION REQUEST TO EAST KENTUCKY POWER COOPERATIVE, INC. DATED JULY 23, 2015

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2015-00134

PUBLIC SERVICE COMMISSION'S FIRST INFORMATION REQUEST DATED 07/23/15

East Kentucky Power Cooperative, Inc. ("EKPC") hereby submits responses to the information requests of Public Service Commission Staff's ("PSC") in this case dated July 23, 2015. Each response with its associated supportive reference materials is individually tabbed.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))	**CASE NO. 2015-00134**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Jeffrey M. Brandt, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission Staff's First Request for Information in the above-referenced case dated July 23, 2015, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Subscribed and sworn before me on this 12th day of August, 2015.

Notary Public #508144

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))	**CASE NO. 2015-00134**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Scott Drake, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission Staff's First Request for Information in the above-referenced case dated July 23, 2015, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Scott Drake

Subscribed and sworn before me on this 12th day of August, 2015.

Gwyn M. Willoughby #509144
Notary Public

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))	**CASE NO. 2015-00134**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Jerry Purvis, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission Staff's First Request for Information in the above-referenced case dated July 23, 2015, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Jerry Purvis

Subscribed and sworn before me on this 12th day of August, 2015.

Gwyn M. Willoughby #500144
Notary Public

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))	**CASE NO. 2015-00134**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Julia J. Tucker, being duly sworn, states that she has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission Staff's First Request for Information in the above-referenced case dated July 23, 2015, and that the matters and things set forth therein are true and accurate to the best of her knowledge, information and belief, formed after reasonable inquiry.

Julia J. Tucker

Subscribed and sworn before me on this 12th day of August, 2015.

Gwyn M. Willoughby
Notary Public

#500144

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

2015 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	)	**CASE NO. 2015-00134**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Patrick C. Woods, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission Staff's First Request for Information in the above-referenced case dated July 23, 2015, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Subscribed and sworn before me on this 12th day of August, 2015.

Notary Public #500144

GWYN M. WILLOUGHBY
Notary Public
State at Large
Kentucky
My Commission Expires Nov 30, 2017

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION DATED 07/23/15
REQUEST 1
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 1. Refer to page 1 of EKPC's 2015 Integrated Resource Plan ("IRP"), which references EKPC owned and operated generation. The sum of the capacities on page 1 is 2,625.2 MW. The first sentence on page 79 of the IRP states that "EKPC currently owns and operates 2,671 MW of summer capacity." Explain the difference between the two references.

Response 1. The capacity listed on page 1 of EKPC's 2015 IRP does sum, as noted, to 2,625.2 MW. The capacity listed for Dale Station in Clark County on page 1 is 149 MW, which is the sum of the capacity for units 3 and 4, and does not include the capacity from units 1 and 2. The 2,671 MW capacity value listed on the top of page 79 includes the additional 46 MW from Dale units 1 and 2. EKPC idled these two units permanently on April 15, 2015. The statement at the top of page 79 could be modified to state that EKPC owns 2,671 MW of capacity but it no longer operates 46MW of that capacity. EKPC currently operates 2,625.2 MW of capacity.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION DATED 07/23/15
REQUEST 2
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 2. Refer to page 3 of the IRP regarding demand-side management ("DSM") Programs. Explain what consideration was given to industrial DSM in EKPC's comprehensive study of energy efficiency savings potential.

Response 2. Industrial DSM was given the same full consideration as the other classes (residential, commercial) in EKPC's comprehensive study of energy efficiency potential.

In Technical Appendix 2 to this IRP, EKPC provided the complete report titled "East Kentucky Power Cooperative Energy Efficiency Potential Study" prepared by GDS Associates ("GDS"). Chapter 5 of that report provides the electric energy efficiency potential estimates for the Industrial sector. For the Industrial sector, there were 194 unique energy efficiency measures included in the energy savings potential analysis. The measures are listed on pages 79-83 of that report.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION DATED 07/23/15
REQUEST 3
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 3. Refer to the second paragraph on page 4 of the IRP regarding the Mercury and Air Toxics Standards environmental regulation. Explain what impact(s), if any, that the recent United State Supreme Court ruling in *Michigan v. Environmental Protection Agency*, No. 14-46 will have on EKPC.

Response 3. On June 29, 2015, the United States Supreme Court determined that the MATS Rule was not properly reviewed and promulgated by the EPA, thereby reversing a decision of the D.C. Circuit Court of Appeals and remanding the case challenging the rule to the lower court. However, the Supreme Court did not vacate the MATS Rule. The Supreme Court determined that the EPA unreasonably refused to consider costs in determining whether it is appropriate to regulate hazardous air pollutants emitted by electric utilities. Yet the MATS Rule remains in effect unless it is vacated by the D.C. Circuit Court of Appeals or unless EPA vacates the MATS Rule during remand.

Since the U.S. Supreme Court's decision was directed at the scope of the EPA's rationale and not the agency's authority to promulgate the rule, it is widely anticipated that the MATS Rule will be re-promulgated by the EPA in the near future. Regardless, many utilities, including EKPC, have already been forced to make significant and expensive investment decisions involving the future of their electric generation resources based upon MATS prior to the Supreme Court's ruling.

Under the current MATS Rule, EKPC must comply with the mercury, SO2 or HCL, and PM limits in the MATS beginning in the spring of 2015. However, if units were in the process of installing additional pollution control equipment and could not complete the work by this initial compliance date, an additional year to achieve compliance could be requested from the Kentucky Energy and Environment Cabinet. EKPC sought and received a MATS extension from the Kentucky Division of Air Quality ("KDAQ") for Dale Station Units 3 and 4 and Cooper Station Units 1 and 2.

EKPC has conducted emissions testing of its units to determine the best way to achieve compliance with the MATS Rule. This testing was completed as part of an extensive engineering effort to ensure that EKPC's units comply with this rule. Pursuant to authority granted by this Commission, Cooper Unit 1 is being tied-in to Cooper Unit 2's environmental controls this fall in order to comply with MATS by April 2016 (2013-00259). With respect to EKPC's Dale Station, PJM Interconnection, LLC ("PJM")

requested that, for reliability purposes, KDAQ grant Dale Units 3 and 4 a one-year extension to comply with MATS. KDAQ granted the extension, thereby temporarily staying the compliance deadline for the Units until April 2016.

The MATS rule, in addition to other existing and anticipated environmental regulations, has required EKPC to evaluate its generation portfolio and determine what actions, if any, it must take to ensure the availability of reliable, affordable capacity. Much of EKPC's generation fleet is well-positioned in terms of environmental compliance. For example, the pollution control upgrades on Spurlock Units 1 and 2 and Cooper Unit 2 place EKPC's units ahead of most electric generating units for MATS compliance, and Spurlock Units 3 and 4, which are equipped with Best Available Control Technology ("BACT"), will meet the MATS Rule limits without additional controls. However, around 2012 EKPC determined that its Dale Station and Cooper Station Unit 1 were unlikely to remain economically viable in light of the substantial investments that would have been required to bring them into compliance with the EPA's new and forthcoming rules (i.e., MATS, Coal Combustion Residuals ("CCR"), and Efficient Limitations Guidelines ("ELG"). To address the compliance issues with respect to Cooper Station Unit 1, EKPC identified and pursued a reconfiguration of that unit's air emissions as a cost-effective and reasonable solution. With respect to Dale Station, EKPC did not and does not believe that reconfiguring or upgrading the Dale Units is an economically viable alternative for ongoing future environmental compliance, and thus those Units are not

part of EKPC's long-term power supply plan. EKPC anticipates that Dale Units 3 and 4 will remain unavailable beginning in 2016 because environmental regulation (including CCR, ELG and a likely re-promulgated MATS Rule) renders those Units uneconomical.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION DATED 07/23/15
REQUEST 4
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 4. Refer to the last sentence of the partial paragraph which ends at the top of page 7 of EKPC's IRP. Provide the current status of the third-party negotiations referenced in the sentence.

Response 4. EKPC has finalized negotiations with a third party, Bluegrass Generation Company, LLC, to purchase its Bluegrass Generation facility in Oldham County, Kentucky. A request for a Certificate of Public Convenience and Necessity ("CPCN") was filed with the Kentucky Public Service Commission on July 24, 2015.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION DATED 07/23/15
REQUEST 5
RESPONSIBLE PERSON: **Patrick C. Woods**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 5. Refer to page 7 of the IRP regarding EKPC's annual report related to being a member of PJM Interconnection, LLC ("PJM"). Provide the date EKPC intends to file the annual report for 2014.

Response 5. EKPC filed its annual report on July 31, 2015.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST REQUEST FOR INFORMATION RESPONSE

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION DATED 07/23/15
REQUEST 6
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 6. Refer to page 15 of the IRP. Provide similar information as shown on Tables 1-1 and 1-2 for the six months ended June 30, 2015.

Response 6. The following chart provides data that was available for the period ending May 31, 2015. More recent data is not yet available from all Member-systems. Forecast energy and demand are given after taking into account the effect of Demand Side Management ("DSM") programs. Differences are defined as actual numbers minus forecasted numbers.

Forecast Comparisons			
	Forecast	**Actual**	**Difference**
Residential Sales, MWh	3,223,421	3,244,298	20,877
Total Commercial and Industrial Sales, MWh	2,135,889	2,056,088	-79,801
Residential Customers	495,084	493,455	-1,629
System Peak Demand, MW	3,207	3,507	300
Total Requirements, MWh	5,652,789	5,642,881	-9,908

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2015-00134

FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15

REQUEST 7

RESPONSIBLE PERSON: **Scott Drake**

COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 7. Refer to pages 17-18 of the IRP where it states:

> EKPC set a goal of achieving the equivalent of 1% of annual retail sales in new DSM annual kWh savings each year. The findings from the potential study show that this goal is achievable in the medium and long term. However, the levels of activity and spending far outstrip current performance and budgeting. In fact, EKPC is currently producing 0.2% of annual retail sales in new DSM annual kWh.
>
> In order to narrow this gap, EKPC has established a ramp-up period of six years (2015-2020) during which time the plan is to steadily increase the investment in DSM resources so that the goal of 1% of annual retail savings by the year 2020 may be achieved. Participation projections reflect this steady increase in the years 2015-2020 then leveling off at participation levels that consistently achieve the 1% goal thereafter (from 2020-2029).
>
> As a result, the 2015 IRP impacts are projected to be lower than the 2012 IRP impacts in the early years of the plan.

Refer also to the Technical Appendix, Volume 2, Demand Side Management, of the IRP, Exhibit DSM-1,[1] EE Potential Report, page 3, where it states:

> This study examined 407 electric energy efficiency measures in the residential, commercial and industrial sectors combined.
>
> Figure 1-2 below shows that cost effective electric energy efficiency resources can play a significantly expanded role in EKPC energy resource mix over the next ten years. For the EKPC, the achievable potential for electricity savings based on the IRC in 2024 is 8.5% of forecast MWh sales for 2024.

Request 7a. Explain the difference between the goal of 1-percent annual retail savings from 2020-2029, and 8.5 percent of forecast MWh sales for 2024 from achievable potential for electricity savings based on the total resource cost ("TRC").

Response 7a. The 1% of annual retail savings is an annual incremental figure (new savings each year amounting to 1% of annual retail sales) while the 8.5% figure is a cumulative figure over the period from 2015 through 2024.

[1] Exhibit DSM-1, East Kentucky Power Cooperative Energy Efficiency Potential Study ("Potential Study"), prepared by CDS Associates, Inc. ("GDS") dated March 25, 2015.

Request 7b. Explain whether EKPC and the Member Cooperatives have considered a DSM surcharge to expand DSM program spending in order to reach the 1-percent goal, or to reflect an appropriate level of DSM costs by customer class in base rates.

Response 7b. Because EKPC's rate structure is designed in such a manner that it is not easy to distinguish between residential, commercial, and industrial customers, a DSM surcharge does not appear to be the best rate mechanism. EKPC has metering data available for sales made under Schedules B, C, and G to determine whether the ultimate retail customer is of the commercial or industrial class. However, the majority of EKPC's wholesale sales to its 16 Member Cooperatives are made under Schedule E and metering data is not available for EKPC to determine whether the ultimate retail customer is of the residential, commercial, or industrial class. Consequently, EKPC cannot satisfy the requirement in KRS 278.285(3) of assigning through the surcharge mechanism the cost of DSM programs to the class of customers which benefit from the programs. EKPC would also note that in its previous base rate cases, while DSM program costs have been identified as either residential, commercial, or industrial, there has been no assignment of the DSM program costs by customer class. Rather, all DSM program costs have been spread and recovered through all base rate schedules.

EKPC is committed to reaching the 1 % goal in its DSM program and will be managing its DSM program costs to reach that goal. EKPC's overall financial condition will dictate when it files its next base rate case. The level of DSM program costs will be part of the evaluation of this overall financial condition, but it is unlikely increased DSM program costs would be the sole reason EKPC files a base rate case.

The Member Cooperatives are supportive of EKPC's efforts to expand DSM and energy efficiency programs, as they recognize the benefits to themselves, their retail customers, and EKPC from these efforts. While EKPC and its Member Cooperatives have discussed DSM program cost recovery options, it has also been recognized that each Member Cooperative will decide for itself which cost recovery approach is the most appropriate. The 16 Member Cooperatives will be continuing to evaluate cost recovery approaches as DSM program costs increase to meet the 1% goal.

Request 7c. Explain the difference between the 407 electric energy measures mentioned on page 3 of the Potential Study and the 207 DSM measures listed on page DSM-2 of the Executive Summary of the Potential Study.

Response 7c. The difference in measure counts is attributable to different approaches to what is considered a unique measure. The 407 measures were tallied by GDS in their final report, and matched the granularity they used for their analysis of

energy efficiency potential. The 207 DSM measures referenced on page DSM-2 in Appendix 2 match what EKPC defined as measures in its DSM planning. They include 202 efficiency measures plus 5 demand response programs.

For the Residential class measures, the GDS tally counts each appearance of a residential measure across several dwelling types (single family, multi-family, manufactured home, new construction), and for weatherization measures, several combinations of primary heating (heat pump, furnace, fossil) and cooling (central, room) systems. For example, there were 12 permutations of the "Improved Duct Sealing" measure to account for the various housing types, heating/cooling combinations, and construction types. Similar expansions occurred for certain Commercial and Industrial measures.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 8
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 8. Refer to the second paragraph on page 17 of the IRP where it states, "For the 2015 IRP, EKPC has fine-tuned its DSM modeling projections to narrow the gap between its theoretical and actual peak demand and energy savings." Identify and explain in detail what changes EKPC has made to fine-tune its DSM modeling projections. Include a discussion on what changes have occurred in the evaluation, measurement, and verification of DSM peak demand and energy savings.

Response 8. This statement refers to two major changes: (1) undertaking a comprehensive study of energy efficiency savings potential; and (2) establishing a ramp-up period of six years (2015-2020) in the modeling projections to steadily increase the annual savings from 0.2% of retail sales to 1.0 % of retail sales.

EKPC has made the following improvements in the evaluation, measurement and verification of DSM peak demand and energy savings:

1. EKPC commissioned a comprehensive Assessment of Evaluation, Measurement and Verification ("EM&V") for DSM Programs which was conducted by KEMA in 2013.
2. EKPC procured and implemented its DSM Tracking software system provided by Direct Technology to improve its data collection and program administration and reporting capabilities for DSM programs.
3. The GDS study of energy efficiency savings potential included a comprehensive set of independent deemed savings estimates that EKPC can use in future EM&V activities.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 9
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 9. Refer to the second paragraph on page 23 of the IRP where it states, "But the results of the analysis showed that the statistically adjusted end-use model ("SAE") did not perform as well as the model EKPC ultimately selected." Explain what analysis was performed in comparing the models and why EKPC chose the statistical model rather than the SAE model.

Response 9. The paragraph referenced in the question is specifically referring to the small commercial class. EKPC constructed models for the small commercial class using econometric modeling techniques as well as the statistically adjusted end-use technique. Model results were compared for each member system. It was found that a statistically adjusted end-use model did not perform as well for the small commercial class. The small commercial class of EKPC's Member-systems are varied with regard to what type of customers are in the class. It is for this reason that EKPC chose a purely econometric model for its small commercial class.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 10
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 10. Refer to page 25 of the IRP where EKPC discusses weather normalization and states that it analyzed 15, 20, and 30 years of weather history ending with March 2014.

Request 10a. Identify the differences in the results obtained from EKPC's analysis for the 15 and 20 year periods versus the 30 year period it used for its study.

Response 10a. When restricting the length of time that is analyzed to 15-year or 20-year periods, the means of the total base 65 heating degree day ("HDD") and base 65 cooling degree day ("CDD") over those time periods do change. The tables on page two of this response are provided with the mean HDD and CDD for the Lexington weather station. The first table shows the average annual CDD and HDD when looking at all months in a year. The second table gives the average CDD and HDD when restricting it to just a cooling season or heating season, respectively. Neither shows a great difference in the 30 to 20 to 15 year scenarios.

All Months	CDD	HDD	Total
30 Years	1215	4585	5800
20 Years	1218	4575	5793
15 Years	1250	4544	5794

Sep. Seas.	CDD	HDD	Total
30 Years	1165	3837	5002
20 Years	1167	3843	5010
15 Years	1194	3844	5038

Request 10b. If available, provide a copy of ITRON's 2013 Weather Normalization Survey of Industry Practices.

Response 10b. Please see pages 3 through 19 of this response for the ITRON 2013 Weather Normalization Survey of Industry Practices report.

Request 10c. Identify the frequency of weather history periods other than 30 years that were followed in the study and explain any reasons for such use, if known.

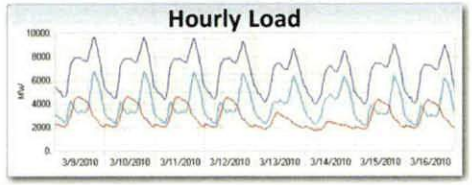
Response 10c. According to the survey results, about a third of respondents used 30 years of data to define normal weather. Twenty-eight percent of respondents used 10 years of data while 18 percent used 20 years of data. Other respondents reported using less than 10 years (2%), 15 years (8%), 25 years (2%), and more than 30 years (5%).

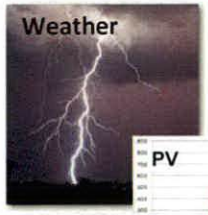

Itron
2013 WEATHER NORMALIZATION SURVEY
Industry Practices
Itron

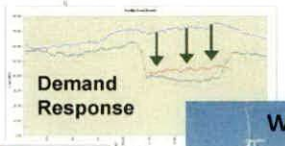
FORECASTING SPECIALIZATION

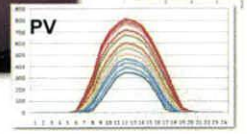
Operational Forecasting

Short-term Forecasting to support: System Operations and Energy Trading







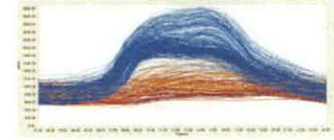


Financial/Budget Forecasting

One to three years: Sales forecasts Revenue forecasts Variance analysis

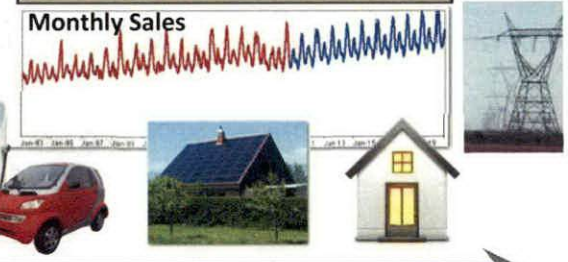
Load Research

Load Research System for Rate Class Load Shape Estimation



Capacity Planning

Long-term Sales, Peak and Hourly Load Forecasting



Short Term (e.g, 7 day)

Medium Term (e.g, budget year)

Long Term (e.g, 5-20 years)

Itron

2013 Weather Normalization Survey

- In November 2013, Itron surveyed energy forecasters in North America. The goal was to understand the current industry practices in Weather Normalization.
- The survey consisted of two main areas:
  - Weather Normalization Models
  - Normal Weather Definition
- A total of 135 responses were obtained.

Company Classification	Responses
Distribution	80
Combined Gas & Electric	27
Retail	8
ISO	5
G&T	9
Generation	3
Transmission	2
Other	1
Total	135

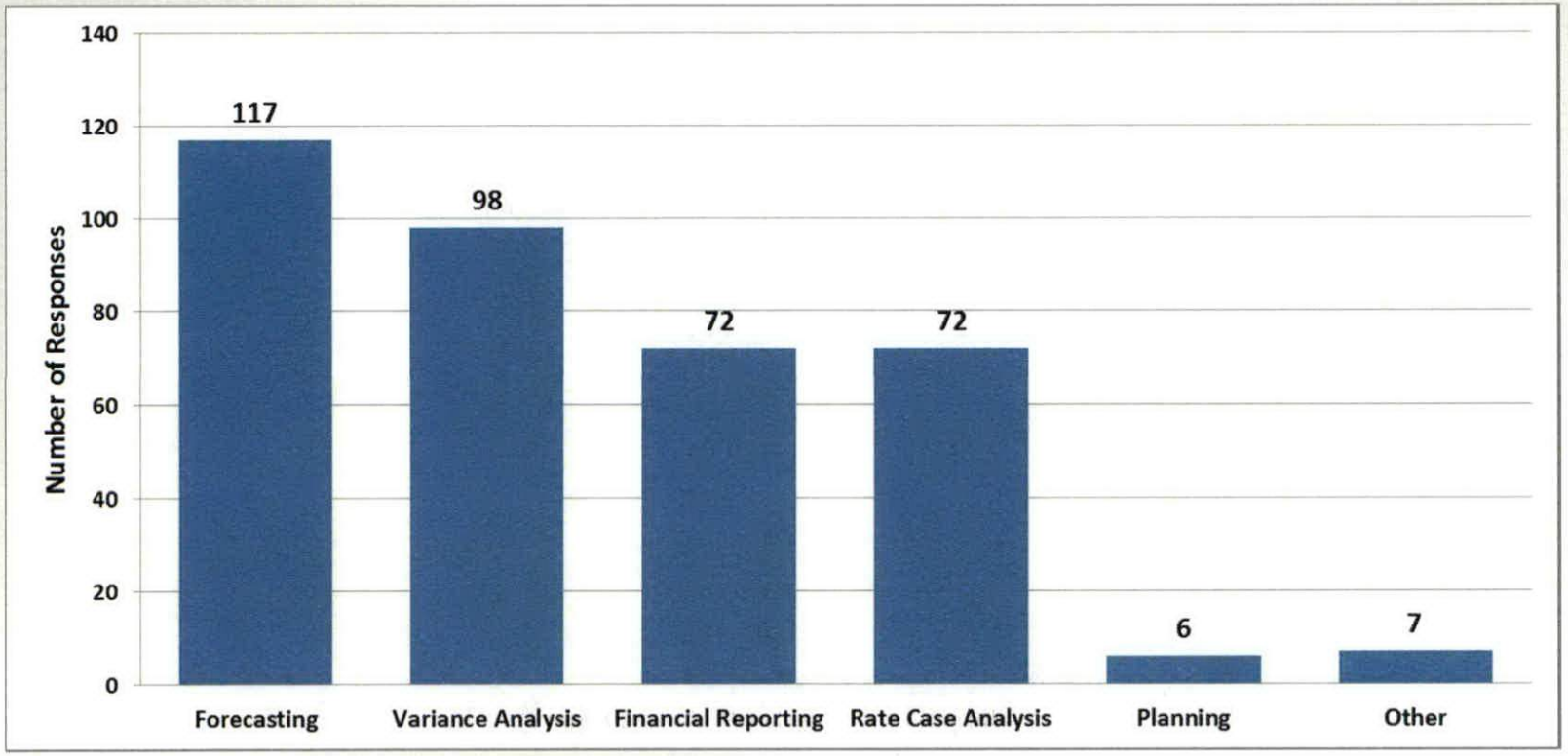
Company Classification	Estimated 2013 Annual Energy (GWh)
Distribution	1,757,893
Combined Gas & Electric	764,094
Retail	212,505
ISO	1,355,781
G&T	104,096
Generation	308,982
Transmission	251,337
Other	NA

55% of Energy in U.S. and Canada

- Distribution. Category includes any company with distribution customers.
- Gas only companies represent 5% of all responses.

Normalization Purpose

Question 8: What is the weather normalization used for?



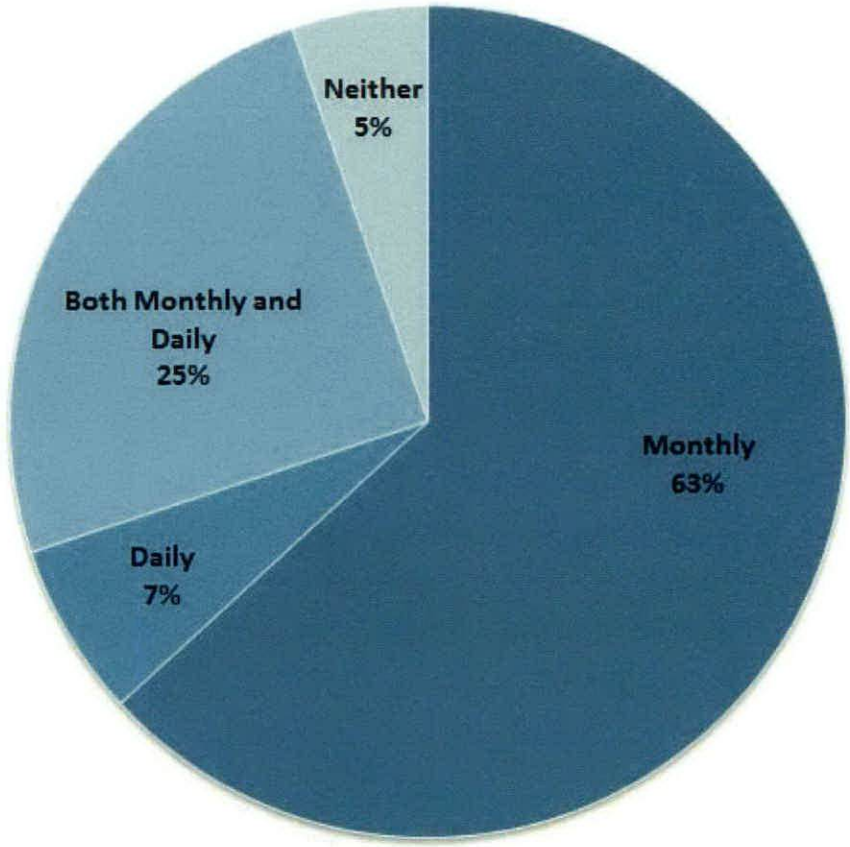
- Planning was categorized separately from the other responses and includes price forecasting, distribution planning, transmission planning, and general analysis.
- Other includes 3 responses that indicated weather normalization is not performed.

Itron

WEATHER NORMALIZATION MODEL QUESTIONS

Data Frequency

Question 9: What is the frequency of the data that you weather normalize?

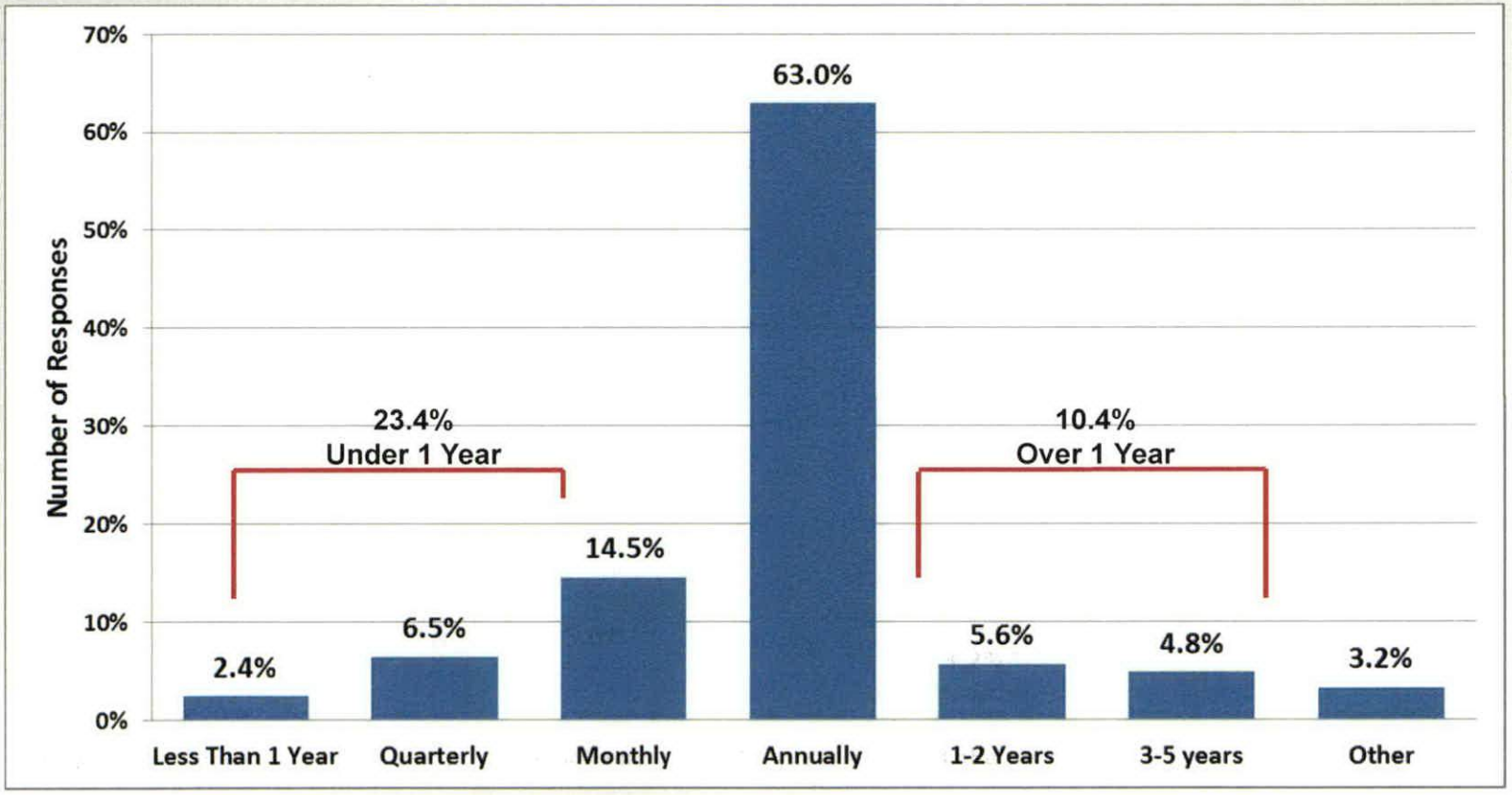


- 132 Responses.
- Monthly data indicates monthly weather normalization.
- Daily data indicates daily periodicity and daily weather normalization.
- Neither includes two responses that weather normalization is not performed. The remaining responses indicate that weather normalization is performed, but provide no details on the data frequency used.

Itron

Frequency of Model Re-estimation/Redefinition

Question 10: How often do you update (re-estimate or redefine) your weather normalization model?

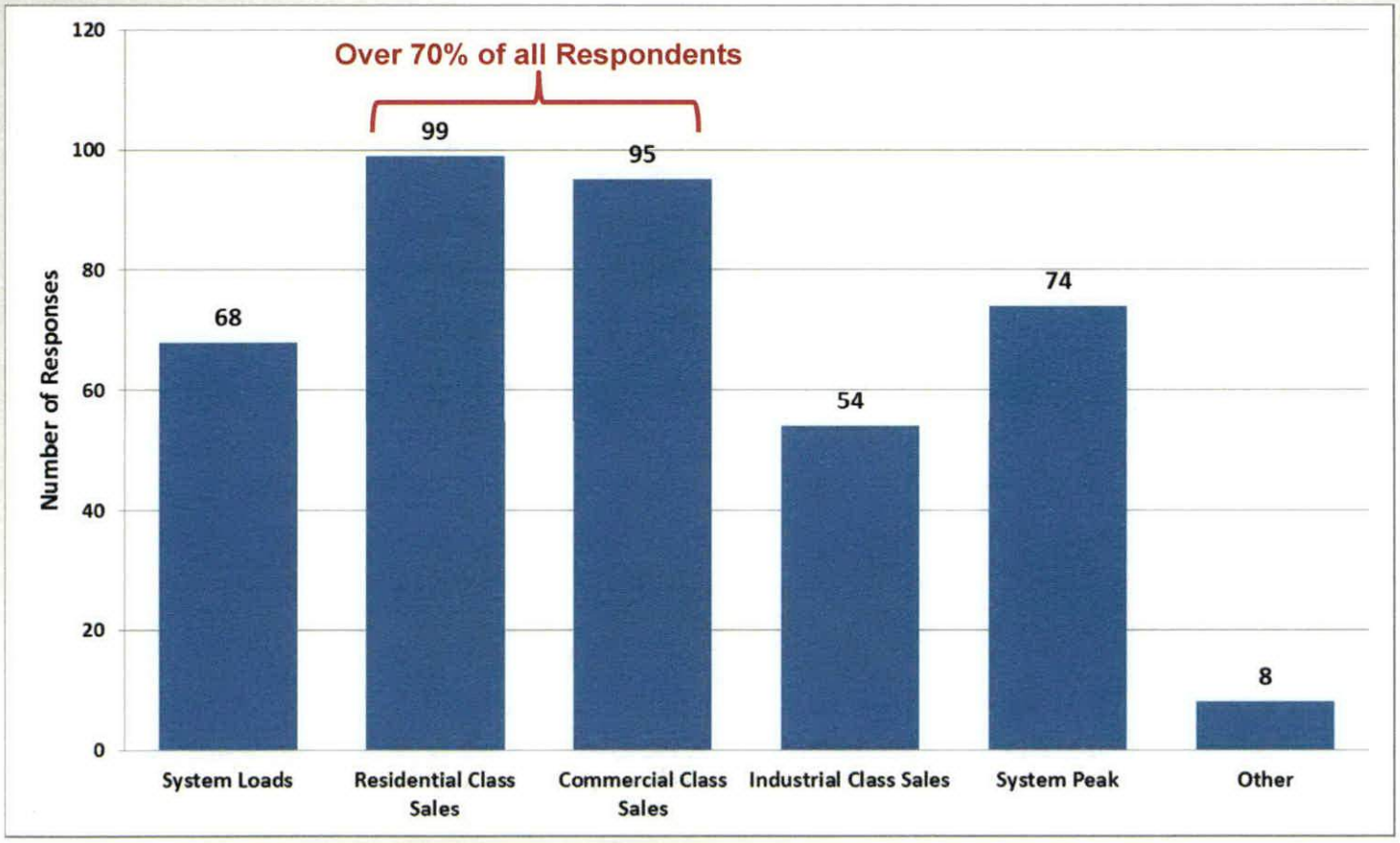


- 124 Responses.
- Other responses include recalculation on an as needed basis.

Itron

Weather Normalization Classes

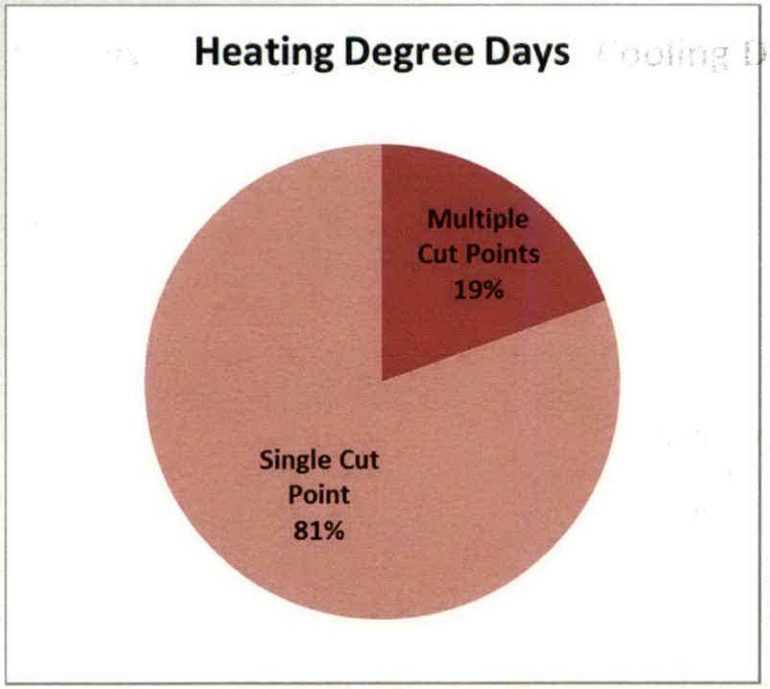
Question 11: What do you normalize?

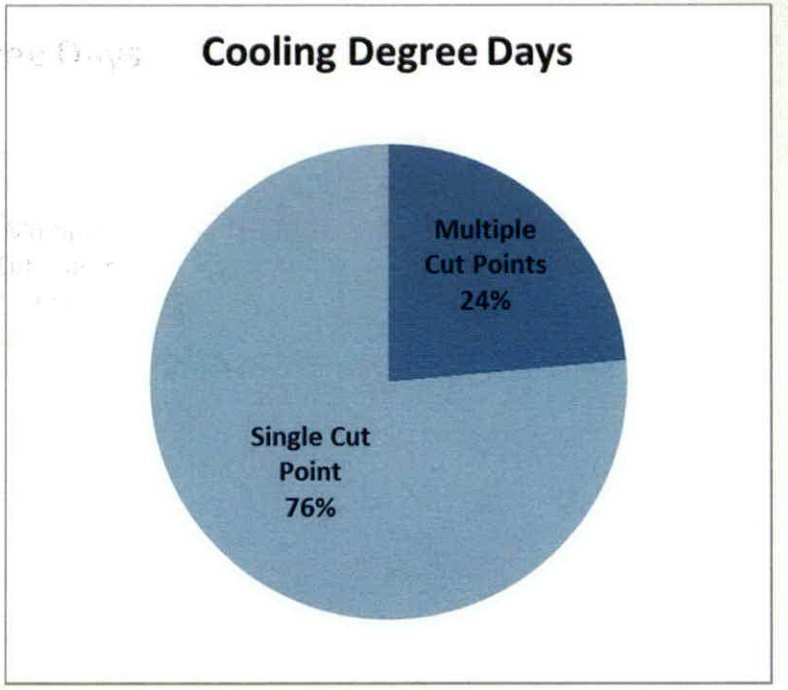


- 135 company responses.
- Other includes government, irrigation, wholesale, and farm classes.

HDD and CDD Cut Points

190 Heating Responses, 174 Cooling Responses

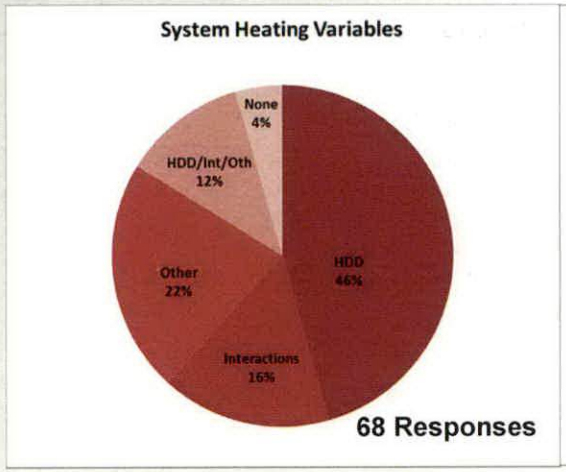


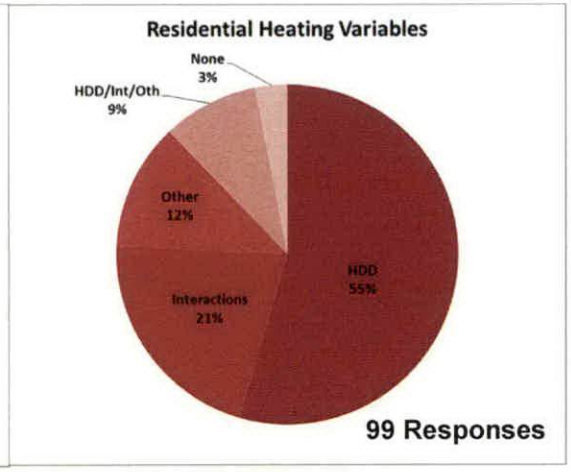


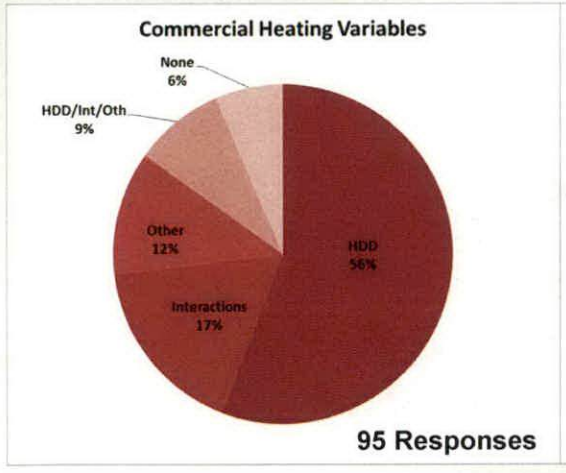
Includes Residential, Commercial, Industrial, and System Models responses

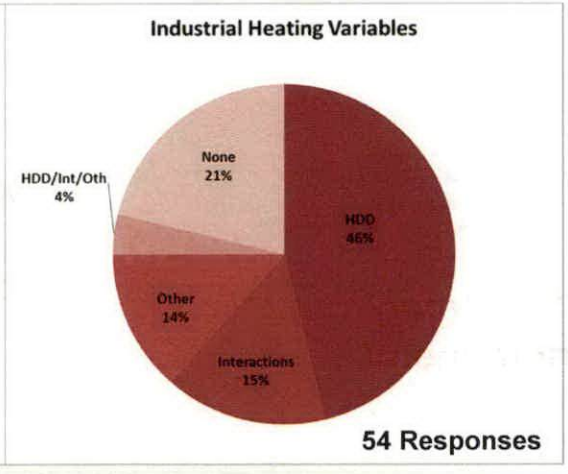
- Single Cut Point = Reports only a single part spline
- Multiple Cut Points = Reports multiple part splines

Heating Response Modeling









Definitions:

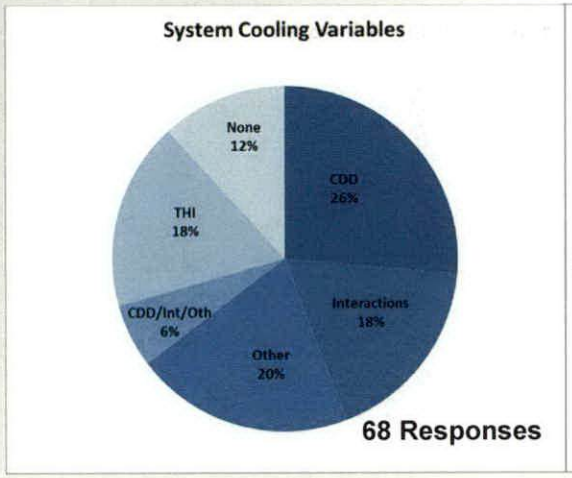
HDD =	Use HDD or HDD Splines Only
Interactions =	Use HDD interacted with another variable
Other =	Use additional weather variables, but no interactions
HDD/Int/Oth =	Use HDD, interactions, and additional variables
None =	Do not normalize for Heating

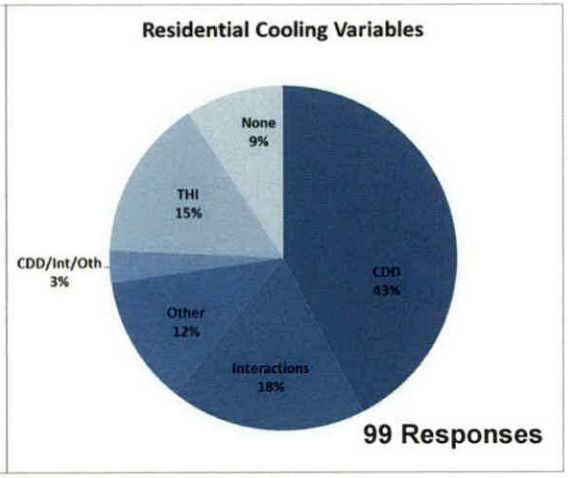
Top Descriptions:

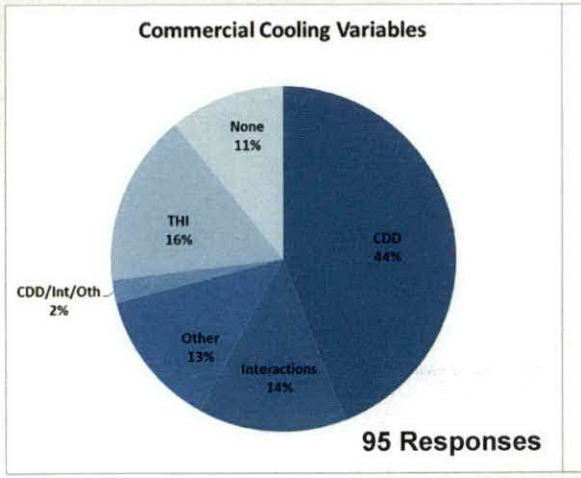
- Other = Wind, Cloudcover
- Interaction = Day Type

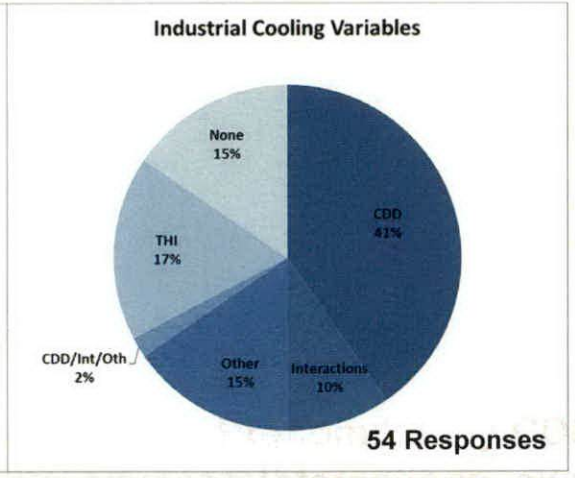
Predominately HDD or HDD Interactions

Cooling Response Modeling









Definitions:

CDD =	Use CDD or CDD Splines Only
Interactions =	Use CDD interacted with another variable
Other =	Use additional weather variables, but no interactions
CDD/Int/Oth =	Use CDD, interactions, and additional variables
THI =	Use THI, not CDD. May include interactions or other variables
None =	Do not normalize for Cooling

Top Descriptions:

- Other = Dewpoint/Humidity, Cloudcover
- Interaction = Day Type

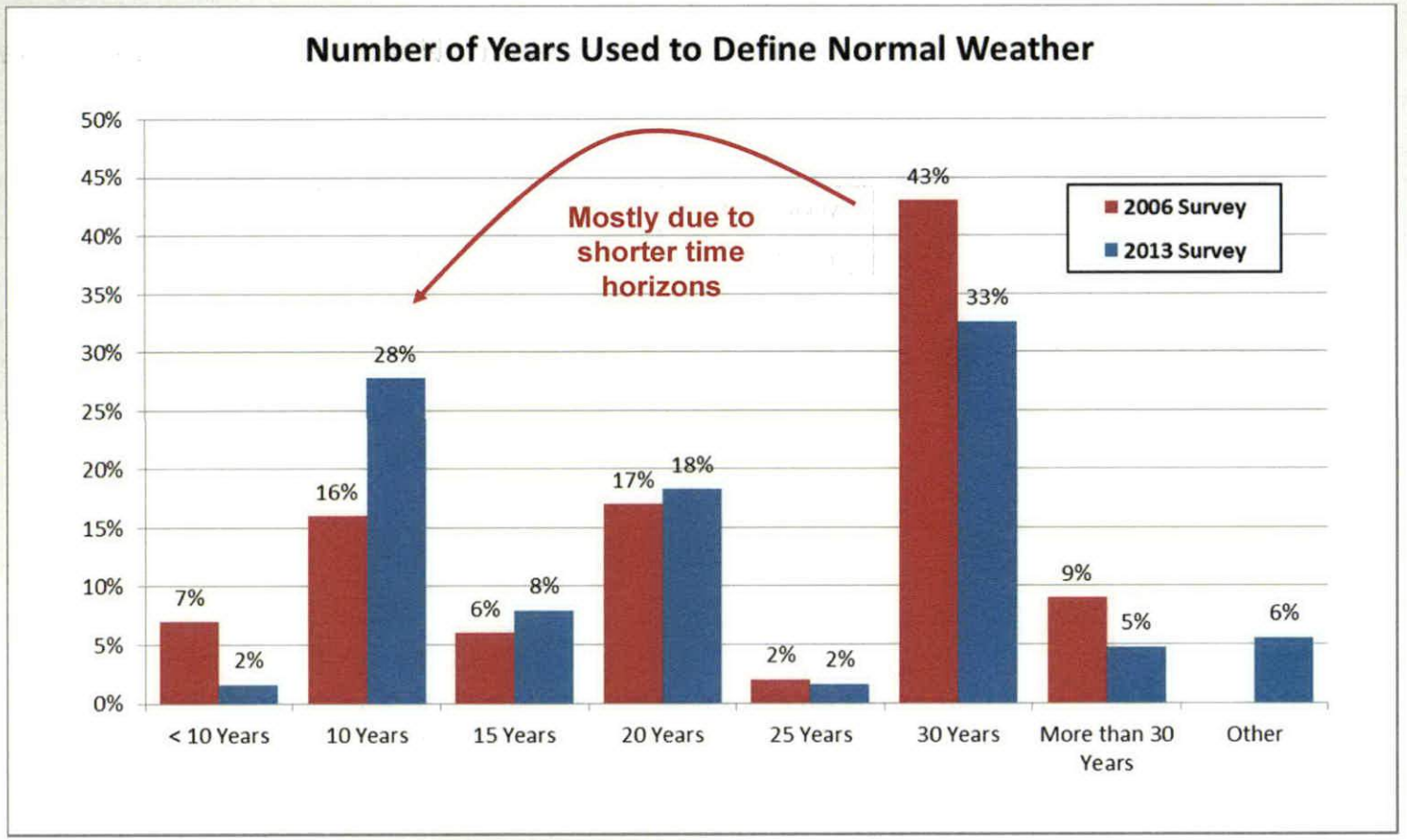
Predominately CDD or CDD Interactions, except for System Models

WEATHER NORMALIZATION
WEATHER QUESTIONS

Itron

Years For Normal Weather

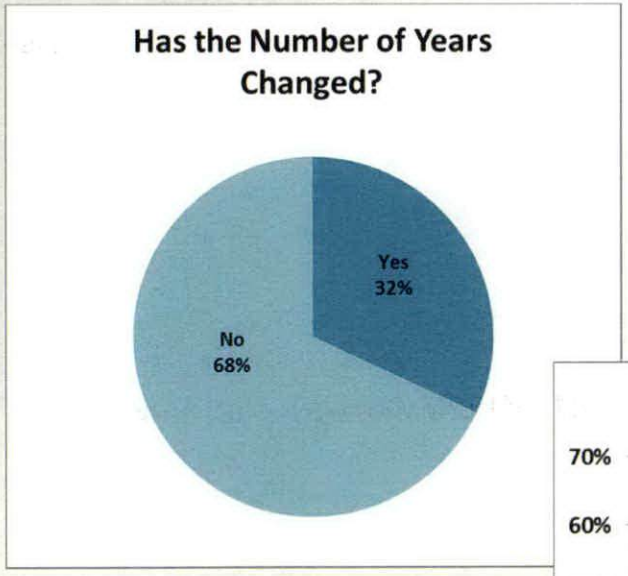
Question 23: How many years of data do you use to define normal monthly weather?



2013 Survey: 126 Responses
2006 Survey: 106 Responses
Other includes years and methods that cannot be classified into the specified categories

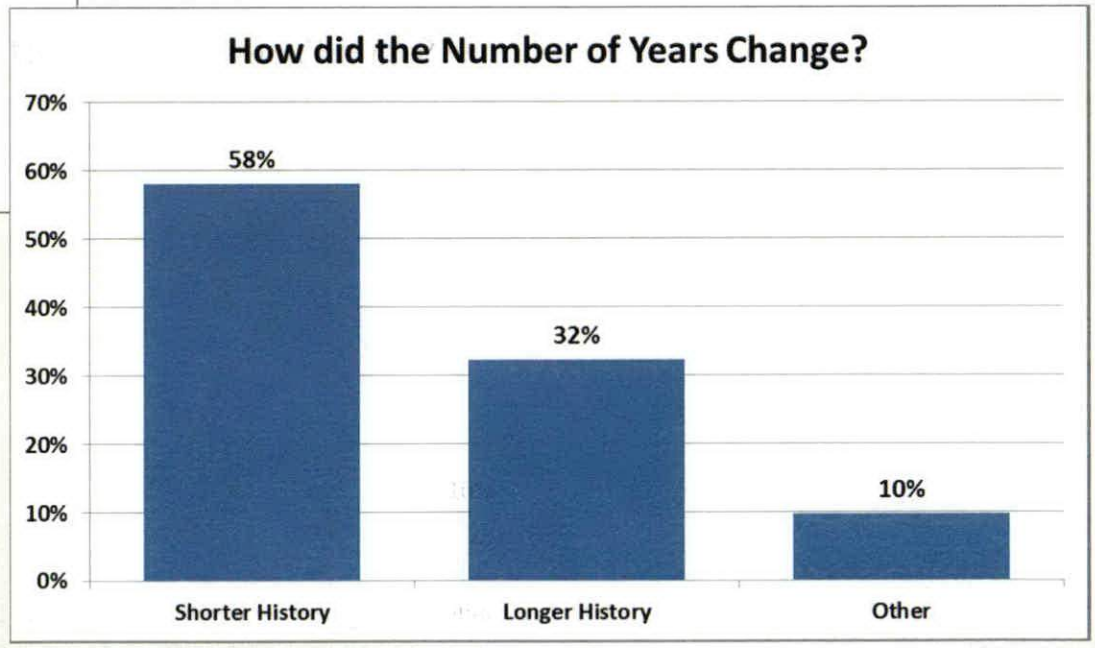
Changes To the Number of Years

125 Responses



2006 Survey

- 115 Responses
- 25% have changed the number of years

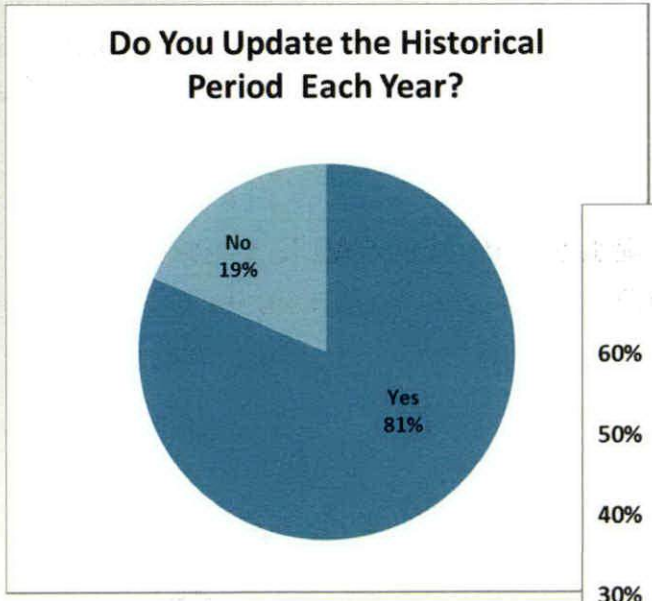


Itron

Frequency of Updates

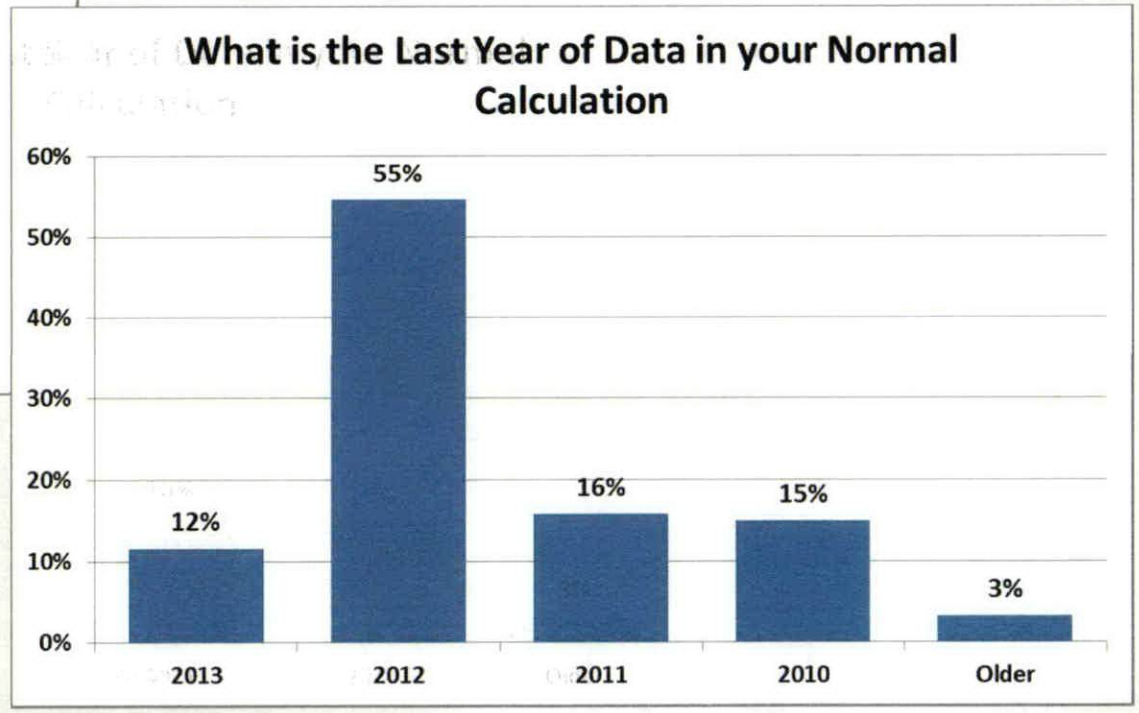
Question 25: Do you update the historical period each year?

124 Responses



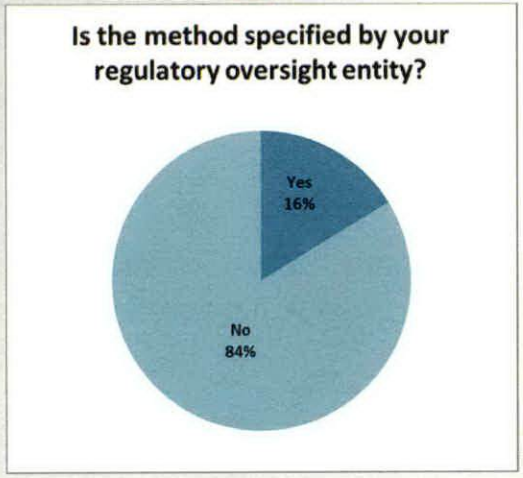
2006 Survey

- 114 Responses
- 69% Update on an annual basis



Itron

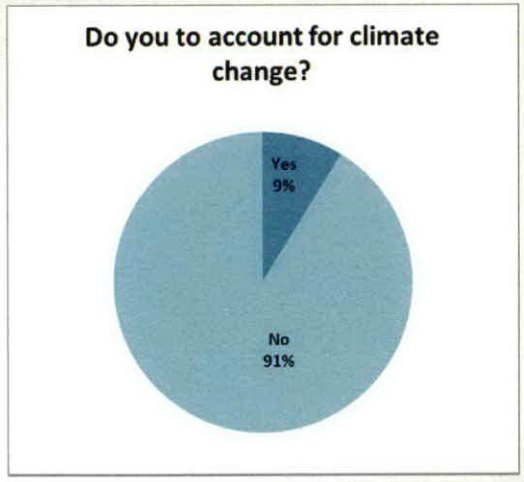
Oversight of Method



2013 Survey
- 123 Responses

2006 Survey
- 166 Responses
- 13% have regulatory specified normal

Climate Change



124 Responses

11 Companies responded that they have methods other than changing the number of years

CONCLUSIONS

- **Classes.** Predominately Residential and Commercial classes.
- **Weather Variables.**
  - Mostly HDD and CDD variables and interactions
    - Primarily single cut points
    - Daytype Interactions are used to improve responses
  - Next most important variables are Wind Speed, Cloud Cover, DewPoint/Humidity
- **Normal Weather Calculation.** The normal weather calculation is still dominated by 30-year averages, but there is a transition to using shorter averages.
- **Normal Weather Updates.** Most companies update the normal weather calculation each year to remain current with the lasted weather information

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 11
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 11. Refer to page 26 of the IRP where it states, "EKPC has set the goal of achieving the equivalent of 1% of its annual retail sales in new DSM annual kWh savings each year."

Request 11a. Provide the amount of DSM program costs currently in EKPC's base rates.

Response 11a. It is difficult to state the exact amount of DSM program costs currently in EKPC's base rates because the last base rate case, Case No. 2010-00167, was the result of a black box settlement. The rate case utilized a forecasted test year which was the 12 months ending December 31, 2011. In the June 11, 2010 response to Item 56(d) of the Commission Staff's First Data Request dated May 14, 2010, EKPC stated that the total cost of DSM programs included in the 2011 forecasted test year was $6,095,551. As part of its evaluation of the settlement in the January 14, 2014 Final Order, the Commission did not identify any adjustments to the DSM program costs. The

Commission determined that EKPC could have justified an increase in revenues of $43,846,946; however, the settlement was for an increase of $43,000,000. The Commission found the $43,000,000 increase to be reasonable. It cannot be readily determined whether the 2011 forecasted test year DSM program costs would have been reduced as a result of the adoption of the settlement increase compared to the justified revenue increase.

Request 11b. By program, provide the amount of EKPC's DSM expenditures for 2014.

Response 11b. All requested information is contained in the 2014 DSM Annual Report which is attached as pages 4 through 26 of this response.

Request 11c. By program, provide the number of participants and the amount of EKPC's DSM expenditures for the six months ended June 30, 2015.

Response 11c. Please see page 27 of this response for EKPC's DSM expenditures for the six months ending June 30, 2015.

Request 11d. By program, provide the projected number of participants and the amount of EKPC's projected DSM expenditures for the six months ended December 31, 2015.

Response 11d. Please see page 28 of this response for EKPC's projected DSM expenditures for the six months ended December 31, 2015.

DSM

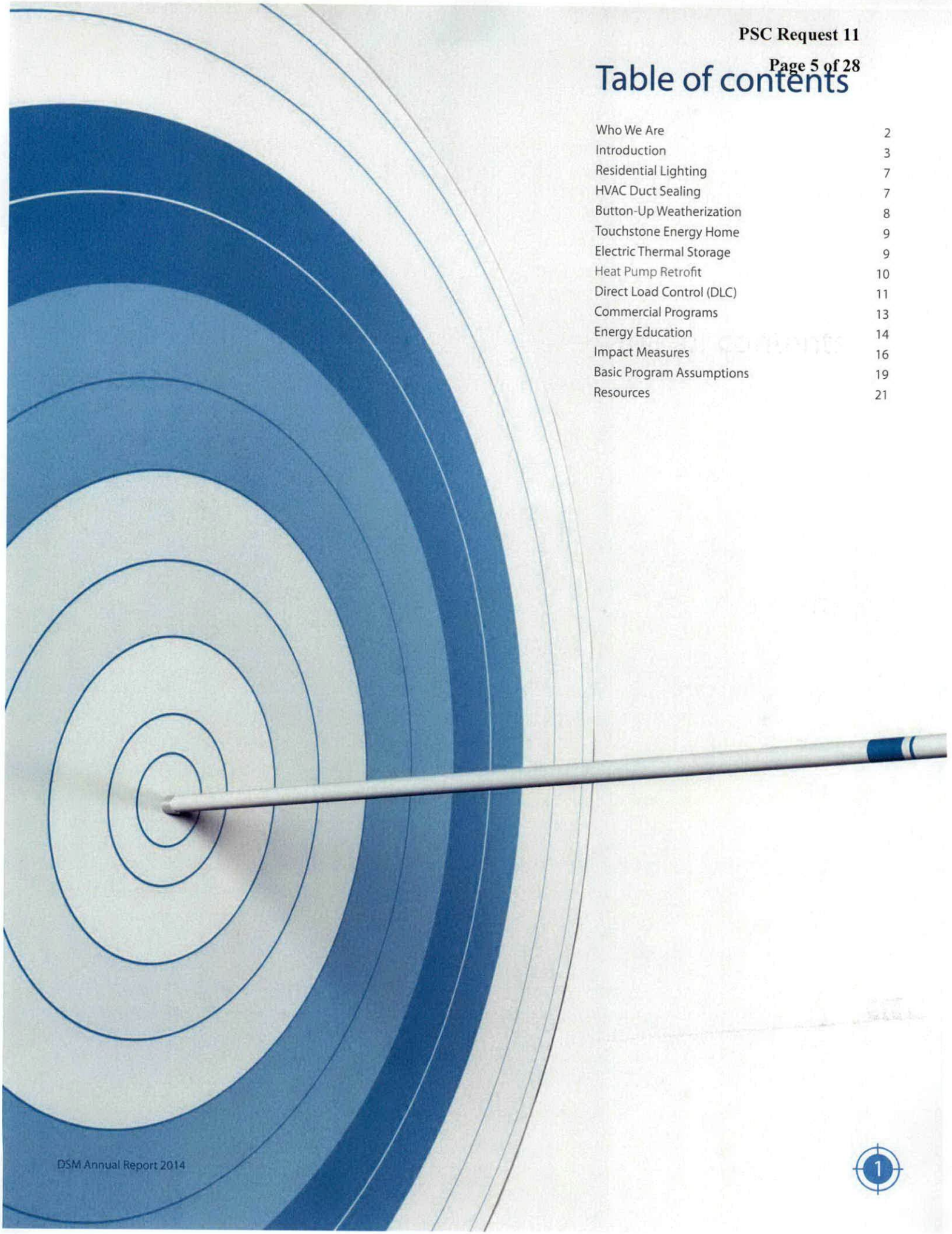
Demand Side Management
2014 Annual Report

Targeting Energy Savings

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy Cooperative

Table of contents



Who We Are

East Kentucky Power Cooperative (EKPC) is owned by 16 electric distribution cooperatives located in Central and Eastern Kentucky. Those cooperatives provide electric service to more than 1 million Kentuckians.

EKPC's role is to provide electric power to its 16 owner-members. EKPC owns and operates four major power plants totaling nearly 3,000 megawatts in capacity, as well as more than 2,900 miles of high-voltage transmission lines. EKPC has provided this service for more than 70 years.

EKPC and each of its 16 owner-member cooperatives is owned and democratically governed by the people who use their energy and services. All are not-for-profit organizations.

More than 520,000 homes and businesses in 87 Kentucky counties depend on EKPC and its 16 owner-member cooperatives for safe, reliable, affordable electric power.

Together, EKPC and its 16 owner-member cooperatives are known as Kentucky's Touchstone Energy Cooperatives.

Targeting Participation

EKPC and its owner-member cooperatives are committed to helping members identify opportunities to improve the energy efficiency of their homes and businesses, and offer a variety of options to achieve that goal. For more than 30 years, EKPC and its 16 owner-member cooperatives have been leaders in developing demand-side management (DSM) programs for Kentuckians.

The cooperatives have steadily built a portfolio of programs that is practical and cost-effective for the members. Each program is evaluated using industry-standard practices, and is shown to be a "win-win-win" situation. Successful programs are beneficial to the member at the end of the line by helping them save money and live more comfortably. The cooperative owner-member systems and EKPC find benefits by avoiding cost of new generation. By working together, energy-efficiency solutions can be more easily achieved.

Collectively, the system employs 29 energy advisors, most of whom have advanced certifications such as RESNET Accredited Home Energy Raters (HERS) and Building Performance Institute (BPI) Building Analysts. They play a vital role by conducting free in-home energy assessments, resulting in thousands of energy audits each year. These visits provide opportunities to direct cooperative members to the most appropriate programs to help reduce energy usage and make their monthly bill more manageable.

Since 2005, EKPC's portfolio has achieved average annual energy reductions of 80 million kilowatt (KW) hours (kWh), and average annual peak reductions of almost 79 megawatts (MW).

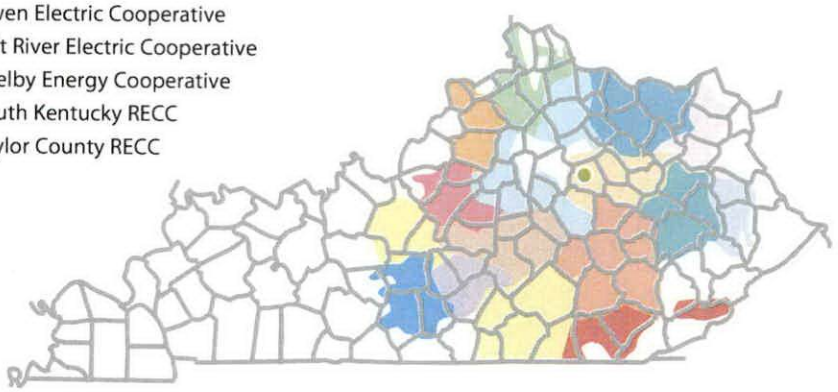
In 2014, participation and savings stayed on track. Overall, energy-efficiency program participation increased more than 33 percent over 2013. These measures will result in a lifetime savings of 181,352 MWh and 362,704,666 pounds of carbon dioxide emissions.

EKPC and its Owner-Members

Sixteen distribution cooperatives, which are called the member systems, own EKPC. The 16 co-ops include:

- Big Sandy RECC
- Blue Grass Energy Cooperative
- Clark Energy Cooperative
- Cumberland Valley Electric
- Farmers RECC
- Fleming-Mason Energy Cooperative
- Grayson RECC
- Inter-County Energy
- Jackson Energy Cooperative
- Licking Valley RECC
- Nolin RECC
- Owen Electric Cooperative
- Salt River Electric Cooperative
- Shelby Energy Cooperative
- South Kentucky RECC
- Taylor County RECC

- EKPC headquarters



East Kentucky Power Cooperative Generation

1	Spurlock	1,346 net MW
2	Dale	195 net MW
3	Smith Combustion Turbine Units	Summer 784 net MW Winter 1,032 net MW
4	Cooper	341 net MW

Landfill Gas Plants

5	Bavarian	3.0 net MW
6	Laurel Ridge	3.0 net MW
7	Green Valley	2.3 net MW
8	Pearl Hollow	2.3 net MW
9	Pendleton	3.0 net MW
10	Mason	0.8 net MW*

Southeastern Power Adm. (SEPA), hydro power	170 MW

shows system-wide service area

* *Mason will be officially closed in 2015*

Building the future, together

In 2014, EKPC took new steps into preparing for the DSM future. EKPC utilized GDS Associates to conduct a DSM program potential study. GDS identified numerous potential DSM programs, and the DSM Steering Committee (comprised of owner-member cooperative representatives and EKPC staff) took on the task of evaluating new programs to be included in EKPC's 2015 Integrated Resources Plan (IRP).

Once new DSM programs were selected, working groups were formed to establish guidelines for four new DSM programs in 2014: ENERGY STAR Appliance Rebate, Appliance Recycling, ENERGY STAR Manufactured Home and a low-income, energy-efficiency program called Community Assistance Resources for Energy Savings (CARES). EKPC filed tariffs for three of those four programs in late 2014, and received approval. Details of the CARES program were not finalized until 2015.

EKPC also incorporated the DSM/Renewable Energy Collaborative's recommendations for DSM options. The Collaborative, which met for more than two years, was made up of representatives of EKPC and the 16 owner-member cooperatives, three environmental advocacy organizations and other interested stakeholders.

"During the more than two years that the original collaborative met, numerous DSM recommendations were passed on to EKPC management for implementation. The success of that collaborative has prompted EKPC and public interest groups to negotiate a charter for continued collaboration going forward," said Steve Wilkins, member of Kentuckians for the Commonwealth.

EKPC and its owner-member cooperatives unveiled a new tool in 2014 called Billing*Insights* ™, that provides cooperative members with the ability to perform free, online energy audits to access their energy usage and receive recommendations for improvements. Powered by Apogee Interactive, this application uses recent actual local weather and energy rates to accurately analyze a home's energy use and costs with some commonly-known inputs from the member.

A new platform for tracking DSM program participation was implemented in 2014. EKPC contracted with ESG, a Direct Technology Company, to use Energy Efficiency Collaboration Platform (EECP). This unified tracking system helps EKPC facilitate standard processes such as reporting and tracking, as well as providing data integrity and security.

In 2014, six of EKPC's owner-member cooperatives and Mountain Association for Community Economic Development (MACED) continued efforts to make an on-bill, energy-efficiency financing program called "How$martKY" available to members. MACED assists with home-energy evaluations and provides loan capital, while EKPC and its owner-member cooperatives provide qualifying rebates and program marketing materials.

"EKPC and its member cooperatives have been dedicated partners in the 'How$martKY' program which provides on-bill financing for residential retrofits," said Peter Hille, President of MACED. "Co-op members save money on their utility bills while enjoying greater comfort in their homes through affordable energy efficiency. We look forward to extending this benefit to more Kentuckians as this program grows."

EKPC and its owner-member cooperatives continued working with Kentucky's affordable housing builders, including Frontier Housing, Peoples' Self Help Housing, Partnership Housing, Southern Tier Housing and local Habitat for Humanities in 2014 to further low-income, energy-efficiency efforts.

As new and emerging technologies develop, EKPC and its owner-member cooperatives will continue to evaluate potential programs into the future.

Residential Lighting:

Providing more than 945,000 CFLs to members

Since 2003, EKPC and its owner-member cooperatives have provided more than 945,000 compact fluorescent lights (CFL) bulbs to members. This program provides CFLs at the annual meetings held by the distribution cooperatives each year. Each registered member receives a two-pack of CFLs that replace two incandescent light bulbs, targeting all residential end-consumers.

In 2014, cooperatives distributed more than 65,000 20-watt cool white CFLs that are expected to result in a lifetime savings of 10,952 MWh and 21,903,840 pounds of carbon dioxide emissions.

In 2014, EKPC provided 5,000 light-emitting diode (LED) bulbs to its owner-member cooperatives for distribution in an effort to better gauge member opinions on the product.

HVAC Duct Sealing:

Addressing the big usage issues

Since the 1990s, EKPC and its owner-member cooperatives have offered this program to reduce the energy loss through a home's HVAC duct system. This program provides incentives to members who seal ductwork through traditional mastic sealers. Duct loss measurement requires the use of a blower door test (before and after the duct sealing work is performed). Duct leakage per system must be reduced to below 10 percent of the fan's rated capacity. All joints in the duct system must be sealed with foil tape and mastic. This program is targeted to single-family homes using electric furnaces or electric heat pumps. All participating homes must have duct systems that are at least two years old to qualify for the incentive . The program is offered only to homes that have centrally-ducted heating systems in unconditioned areas.

In 2014, 248 HVAC Duct Sealing rebates were provided to members, resulting in a lifetime savings of 4,030 MWh and 8,059,008 pounds of carbon dioxide emissions. From 2013 to 2014, participation increased by 8 percent.

Button-Up Weatherization:

Improving homes' energy efficiency

Since the early 1990s, EKPC and its owner-member cooperatives have offered this program to improve a home's energy efficiency, comfort, and reduce energy use. This program offers incentives to members who add insulation materials or use other weatherization techniques to reduce heat loss in the home. Any member who resides in a site-built or manufactured home that is at least two years old and uses electricity as their primary source of heat is eligible.

This program offers a whole-house approach with multiple levels.

Button-Up Weatherization with Air Sealing:
This version of the Button-Up encourages members to air seal the envelope of their home in addition to the regular Button-Up improvements. A blower door test is required to demonstrate the impact in kW demand reduction, and an added incentive is paid based on that reduction.

Advanced Weatherization Level 2:
Level 2 encourages homeowners to address all of their home's inefficiencies at one time. The resulting BTUh savings can be as much as 150 percent of Button- Up Level I. Achieving this level of savings results in a greater incentive.

Advanced Weatherization Level 3:
This version represents the highest level. Level 3 also encourages homeowners to address all of their home's inefficiencies at one time. The resulting BTUh savings can be as much as 200 percent of Button-Up Level I. Achieving this level of savings results in an even greater incentive.

Levels 2 and 3 of this program are targeted to members who currently heat their home with electricity, particularly homes with unfinished basements, homes that have partition walls separating a crawl space or garage, and Cape Cod style homes (1.5 stories).

In 2014, 805 Button-Up rebates were provided to members, resulting in a lifetime savings of 22,200 MWh and 44,399,610 pounds of carbon dioxide emissions. From 2013 to 2014, participation increased by 21 percent.

Touchstone Energy Home:

Building the home of your dreams

Since 2003, EKPC and its owner-member cooperatives have offered this program to increase energy efficiency in new-home construction. This program is designed to encourage new homes to be built to higher standards for thermal integrity and equipment efficiency, as well as to choose a geothermal or an air-source heat pump, rather than less efficient forms of heating and cooling. Homes built to Touchstone Energy Home standards typically use 30 percent less energy than the same home built to typical construction standards. Plans are submitted before the home is built, a pre-drywall inspection is made, and a blower door test is administered after the home is built to verify that the home meets the standard.

This program is targeted towards the residential new construction market and members who are constructing new site-built homes.

In 2014, 346 Touchstone Energy Home rebates were provided to members, resulting in a lifetime savings of 17,576 MWh and 35,152,320 pounds of carbon dioxide emissions. From 2013 to 2014, participation increased by 64 percent.

EKPC's owner-members have also used this program to partner with Kentucky's affordable housing builders. Relationships with these organizations have led to improved efficiency in affordable housing and lower monthly energy costs for recipients of these homes.

Electric Thermal Storage:

Using power off-peak

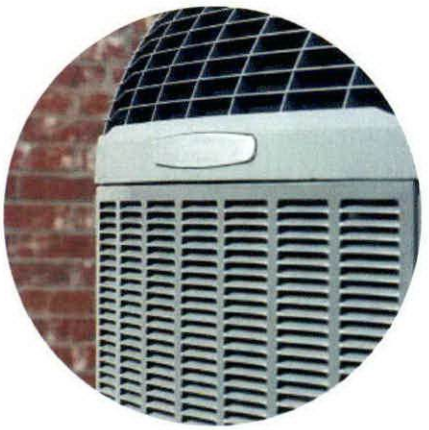
Since the 1980s, EKPC and its owner-member cooperatives have offered this program to incentivize off-peak heating. This program promotes members to utilize off-peak heating equipment by providing a discounted energy rate.

This program is targeted primarily to members who currently use electric resistance heat (baseboard or ceiling cable) as their primary source for space heating.

In 2014, 15 ETS rebates were provided to members. After re-evalution of this program, EKPC filed a tariff to discontinue this offering as a DSM program. The PSC approved this request.

Heat Pump Retrofit:

Replacing resistance heat sources

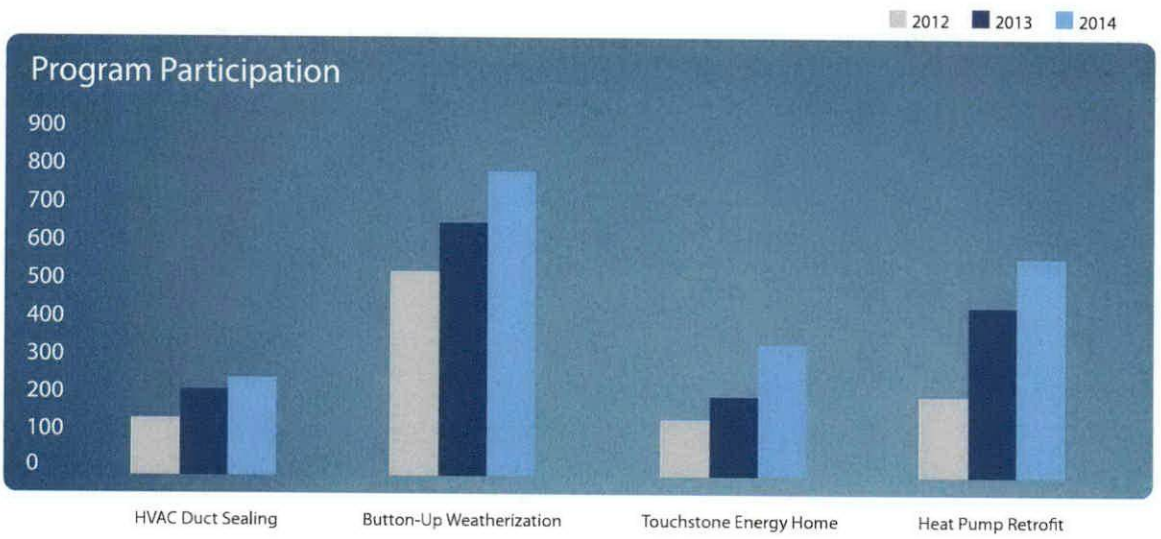


For decades, EKPC and its owner-member cooperatives have offered this program to lower the cost of heating homes and increase comfort. This program provides incentives for members to replace their existing resistance heat source with a high-efficiency heat pump through three levels of rebates.

Level 1 offers a rebate for a 13 SEER/7.5 HSPF heat pump. Level 2 offers a rebate for a 14 SEER/8.0 HSPF heat pump. Level 3 offers a rebate for a 15 SEER/8.5 HSPF or higher heat pump. The existing heating system must be two years or older to qualify for incentives unless the heat pump is being installed in a new manufactured home. New manufactured homeowners who install a heat pump qualify based on the levels above.

The program is targeted to members who currently use a resistance heat source. Incentives are offered when the homeowner's primary source of heat is an electric resistance furnace, ceiling cable heat, or baseboard heat in both site-built and manufactured homes.

In 2014, 576 Heat Pump Retrofit rebates were provided to members, resulting in a lifetime savings of 85,964 MWh and 171,926,880 pounds of carbon dioxide emissions. The incentives to members for this program were doubled in 2013 to increase participation. From 2013 to 2014, participation increased by 30 percent.



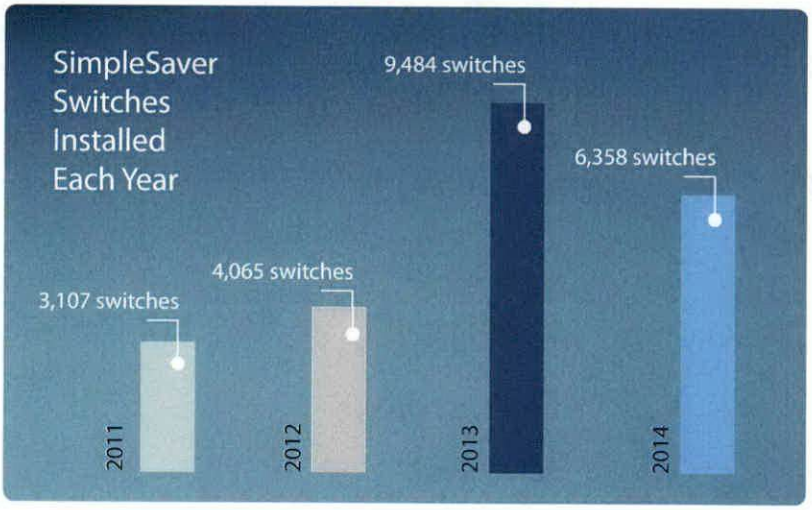
Direct Load Control:

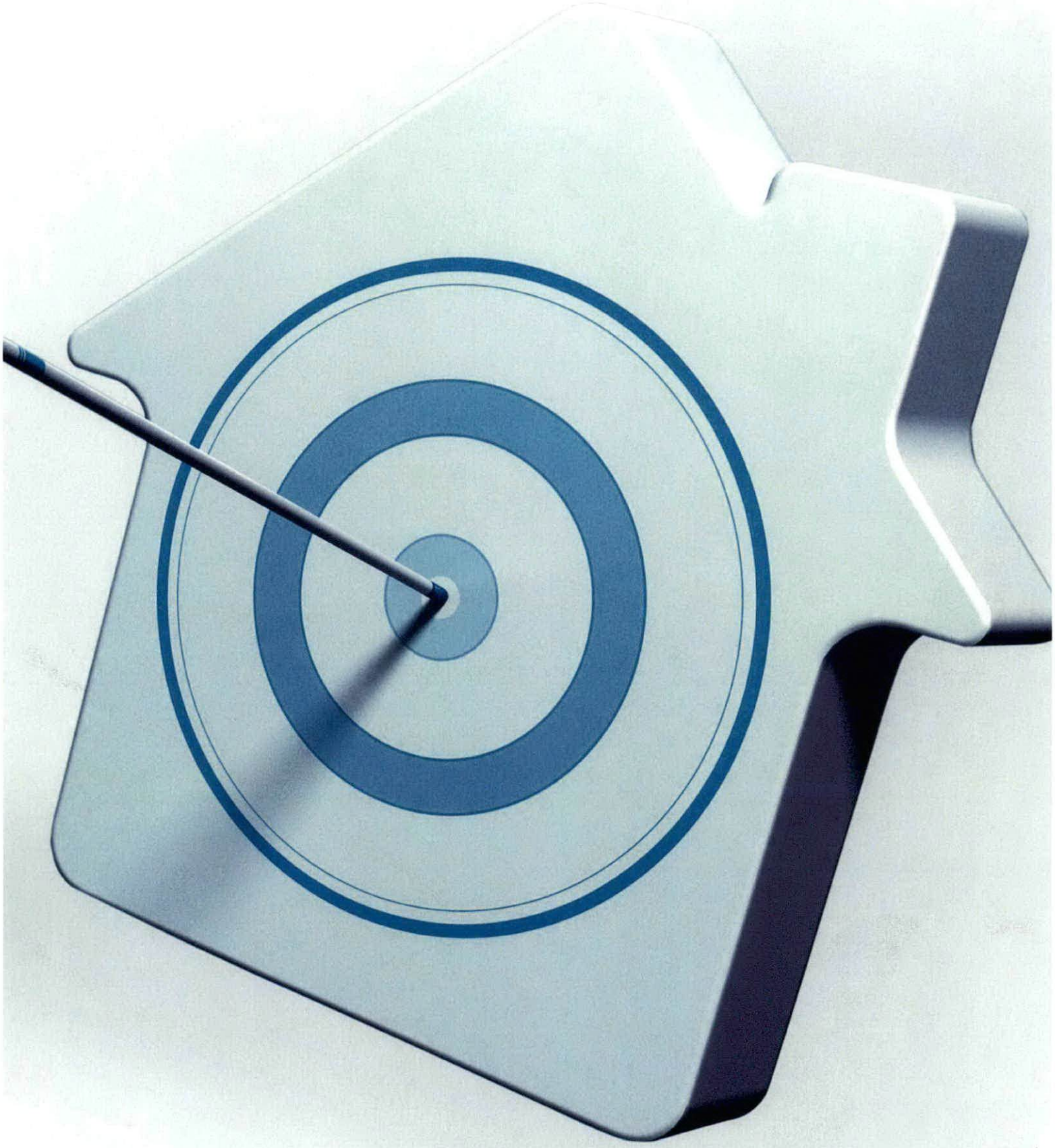
Making saving simple

Since 2008, EKPC and its owner-member cooperatives have offered this program to manage peak usage. This program offers incentives to members who enroll central air-conditioners and electric water heaters. Switches are installed and, during periods of high demand, the utility briefly cycles the appliance off in order to reduce system peaks and save on costs for peak power. Although EKPC's system typically peaks in winter, member's heating appliances are not interrupted to lower peak. Member comfort and safety are top priority.

This program is targeted to any member with central air-conditioning, heat pump or electric tank water heaters, 40 gallons or greater.

In 2014, 6,358 switches were installed, resulting in a reduction of 4.776 MW during the summer months and 1.306 MW in the winter.





Commercial Programs:

Commercial & Industrial Advanced Lighting

For several years, EKPC and its owner-member cooperatives have offered this program to improve lighting in commercial or industrial facilities. This program offers incentives to install high-efficiency lamps and ballasts, including, but not limited to, LED exit signs, T-5 fluorescent fixtures and advanced controls.

This program is targeted to any existing commercial or industrial facility in the service territory of a distribution cooperative. The facility and its lighting must have been in service for at least two years.

In 2014, 172 C&I Advanced Lighting rebates were provided to members, resulting in a lifetime savings of 39,970 MWh and 79,939,360 pounds of carbon dioxide emissions.

Industrial Compressed-Air

For several years, EKPC and its owner-member cooperatives have offered this program to refund the cost of a leak-detection audit. This program is designed to reduce electricity consumption through detecting and repairing compressed-air leaks. Compressed-air production and distribution represents one of the primary electricity costs in many industrial plants. Both the supply side (compressors and conditioning equipment) and the demand side (distribution and end use) can be targeted to significantly improve energy efficiency.

This program is targeted to any existing commercial or industrial facility that uses electricity compressed air applications.

Energy Education:

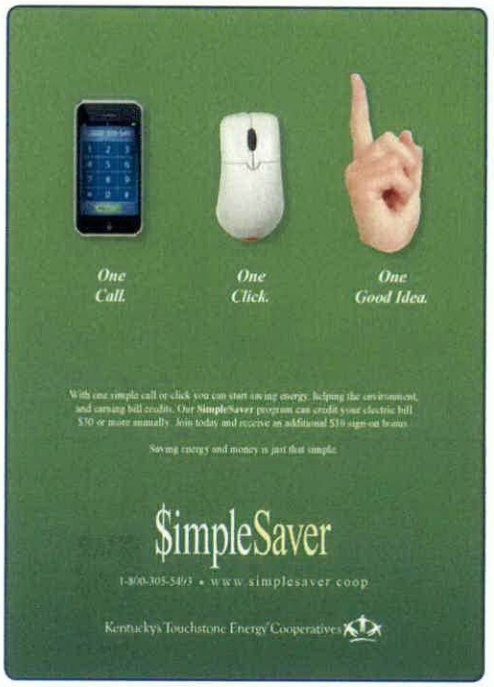
Getting the message out

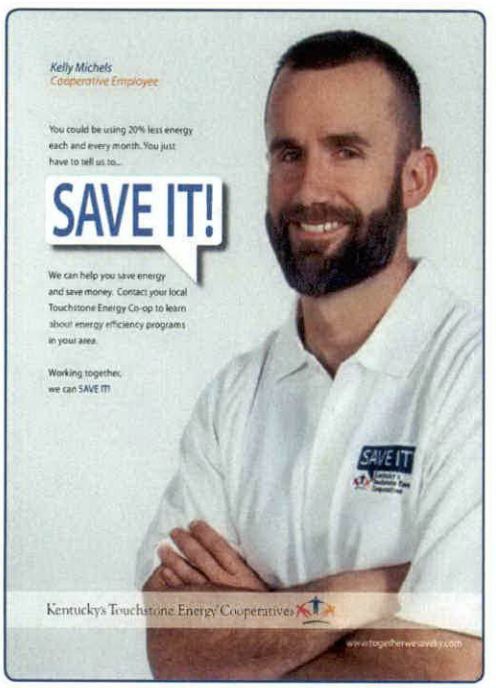
Collectively, EKPC and its owner-member cooperatives reached audiences through multiple forms of media including direct mail pieces, bill inserts, newspapers, television, billboards, radio, magazines, web, brochures, social media and through personal interaction. Several campaigns were utilized to encourage member participation in DSM programs and general energy-efficiency measures.

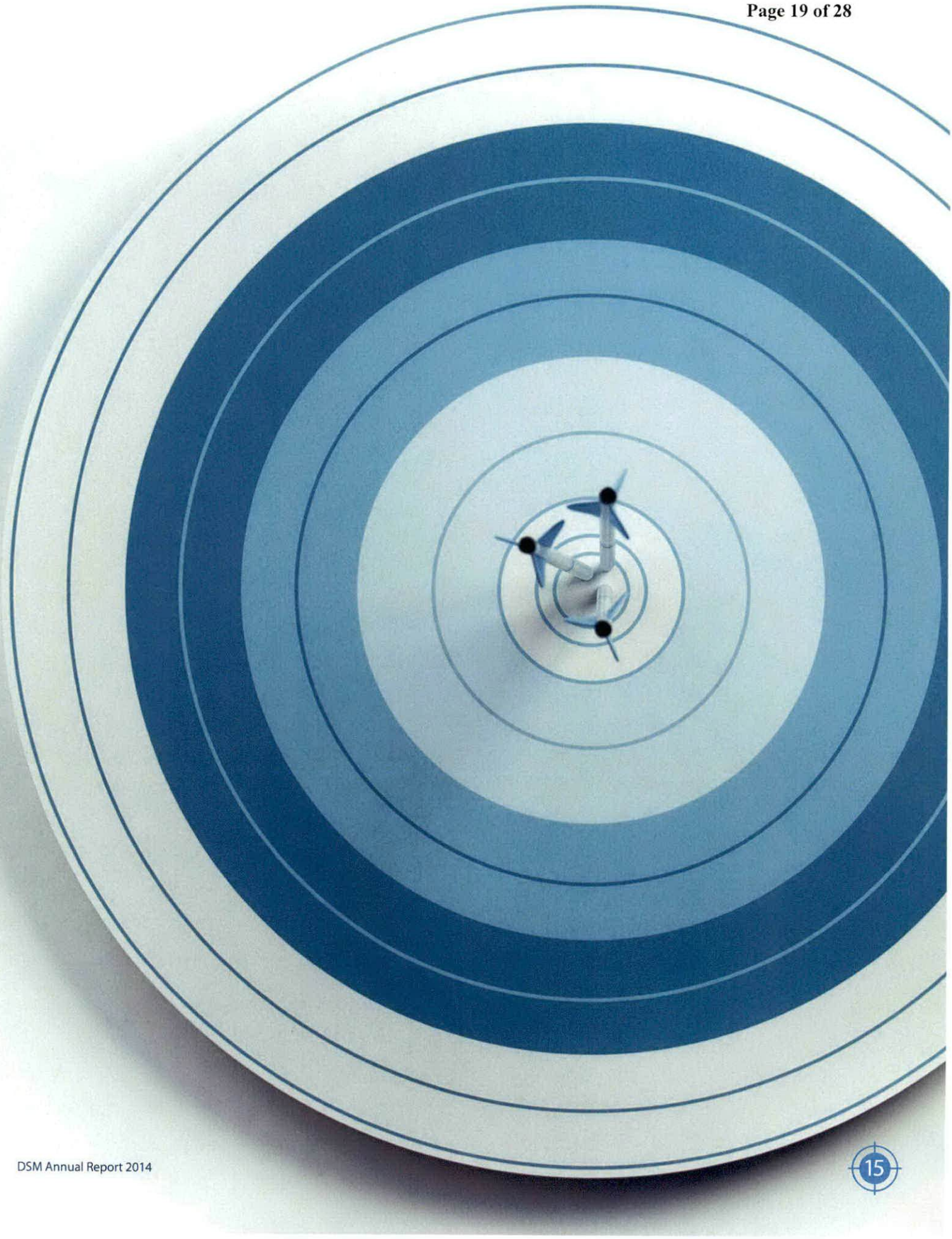
In 2014, the SAVE IT! campaign was used for a second year to promote DSM programs by featuring local cooperative members. The strategy of this effort is to create a dialogue between the owner-member cooperative and the member. More than 50 variations of this campaign were produced and provided to the owner-member cooperatives.

Several new concepts for promoting the SimpleSaver (DLC) program were created in 2014 to increase participation. In order to attract as many audiences as possible, campaigns focused on different topics of benefit – environmental, bill credits, delay of new power plant construction and the ease of the program. The outbound calling project continued in 2014, as well. More than half of new participants were added due to this effort.

New campaigns were created in 2014 for the new offerings, including ENERGY STAR Appliance Rebate, Appliance Recycling and Billing*Insights*™. To promote the use of Billing*Insights*, the concept of providing a Philips Slimstyle LED bulb to participants was introduced in late 2014.







Impact Measures:

System summary of 2014 DSM program savings

DSM program totals for installed measures in 2014

All programs	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Lifetime energy savings (MWh)	Cost of demand saved ($/kW)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
All DSM programs	73,711	12,515	6.539	4.385	$5,541,412	181,352	$639	$0.014	362,704,666

Residential Lighting

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
CFLs	65,190	1,369	0.137	0.228	$41,814	8	10,952	$0.004	21,903,840

HVAC Duct Seal

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
HVAC Duct Sealing	248	336	0.099	0.265	$105,750	12	4,030	$0.026	8,059,008

Button-Up Weatherization

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
Button up level 1	796	1,447	0.317	1.041	$489,688	15	21,705	$0.023	43,410,000
Button up level 2	6	14	0.003	0.011	$3,992	15	215	$0.019	430,560
Button up level 3	3	19	0.004	0.014	$5,046	15	280	$0.018	559,050

Touchstone Energy Home

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
TSE Home Prescriptive	97	249	0.064	0.241	$105,107	20	4,982	$0.021	9,963,840
TSE Home HERS 79 or better	237	609	0.156	0.588	$315,779	20	12,172	$0.026	24,344,640
TSE Home HERS 80-85	12	21	0.005	0.020	$10,065	20	422	$0.024	843,840

Electric Thermal Storage

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
Electric Thermal Storage	15	-9	0.000	0.102	$6,000	20	(190)	$(0.032)	(379,200)

Heat Pump Retrofit

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
Heat Pump 13 SEER	324	2,324	0.049	0.000	$457,999	20	46,488	$0.010	92,975,040
Heat Pump 14 SEER	51	381	0.015	0.000	$73,041	20	7,626	$0.010	15,252,440
Heat Pump 15 SEER or higher	201	1,592	0.089	0.000	$384,957	20	31,850	$0.012	63,699,400

Direct Load Control

Residential program	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Cost of Demand saved ($/KW)
DLC Air Conditioner	3847	19	3.847	0.000	$1,84,354	$480
DLC Water Heater	2511	25	0.929	1.306	$1,205,146	$1,297
DLC total	6358	44	4.776	1.306	$3,051,500	$639

Commercial and Industrial

C&I programs	Participation	Annual Energy Savings (MWh)	Summer Demand Savings (MW)	Winter Demand Savings (MW)	2014 program costs	Measure life (years)	Lifetime energy savings (MWh)	Cost of energy saved ($/kWh)	Lifetime CO2 savings (lbs)
Commercial Lighting	172	3,997	0.799	0.432	$484,563	10	39,970	$0.012	79,939,360
Compressed Air	1	122	0.024	0.010	$6,120	7	851	$0.007	1,702,848
Total	173	4,119	0.823	0.442	$490,683		40,821	$0.012	81,642,208

2014 Basic Program Assumptions [1]

Weatherization Programs

Measure: Button Up Level 1

Annual kWh Saved:	2,205
Winter Demand Savings:	1.71
Summer Demand Savings:	0.52
Lifetime of Savings:	15 years
Installation Rate:	100%
TRC: [3]	1.45

Measure: Button Up Level 2

Annual kWh Saved:	4,567
Winter Demand Savings:	3.53
Summer Demand Savings:	1.07
Lifetime of Savings:	15 years
(Weighted mix of measures)	
Installation Rate:	100%
TRC:	1.52

Measure: Button Up Level 3

Annual kWh Saved:	6,090
Winter Demand Savings:	4.71
Summer Demand Savings:	1.43
Lifetime of Savings:	15 years
(Weighted mix of measures)	
Installation Rate:	100%
TRC:	1.56

Measure: Button Up w/Air Seal

Annual kWh Saved:	3,045
Winter Demand Savings:	2.35
Summer Demand Savings:	0.720
Lifetime of Savings:	15 years
Installation Rate:	100%
TRC:	1.44

Equipment Efficiency

Measure: HVAC Maintenance Program

For a typical heat pump in typical residence to same home reduced by 12% savings

Annual kWh Saved:	1,354
Winter Demand Savings:	1.07
Summer Demand Savings:	0.40
Lifetime of Savings:	12 years
Installation Rate:	100%
TRC:	1.15

Measure: Heat Pump SEER 13

From Electric Furnace and Central Air to ENERGY STAR SEER 13, HSPF 7.5

Annual kWh Saved:	7,174
Winter Demand Savings:	0
Summer Demand Savings:	0 .15
Lifetime of Savings:	20 years
Installation Rate:	100%
TRC:	1.52

Measure: Heat Pump SEER 14

From Electric Furnace and Central Air to ENERGY STAR SEER 14, HSPF 8.0

Annual kWh Saved:	7,533
Winter Demand Savings:	0
Summer Demand Savings:	0.32
Lifetime of Savings:	20 years
Installation Rate:	100%
TRC:	1.32

Measure: Heat Pump SEER 15

From Electric Furnace and Central Air to ENERGY STAR SEER 15, HSPF 8.5

Annual kWh Saved:	7,978
Winter Demand Savings:	0
Summer Demand Savings:	0.45
Lifetime of Savings:	20 years
Installation Rate:	100%
TRC:	1.08

Measure: Electric Thermal Storage
Designed as a Demand Response program

Annual kWh Saved:	(632)
Winter Demand Savings:	6.79
Summer Demand Savings:	0
Lifetime of Savings:	20 years
Installation Rate:	100%
TRC:	0.28

New Home Construction

Measure: Touchstone Energy Home
Prescriptive and Performance Level #2 – Encourages new homes to be built to a standard of at least SEER 14.5, HSPF 8.2; HERS Rating of 79 and below

Annual kWh Saved:	2,568
Winter Demand Savings:	2.48
Summer Demand Savings:	0.66
Lifetime of Savings:	20 years
Installation Rate:	100%
TRC:	1.98

Measure: Touchstone Energy Home
Performance Level #1 – Encourages new homes to be built to a standard of at least SEER 14.5, HSPF 8.2; HERS rating of 80-85

Annual kWh Saved:	1,758
Winter Demand Savings:	1.7
Summer Demand Savings:	0.45
Lifetime of Savings:	20 years
Installation Rate:	100%
TRC:	2.06

Residential Lighting [2]

Measure: CFLs

Annual kWh Saved:	21
Winter Demand Savings:	0.0035
Summer Demand Savings:	0.0021
Lifetime of Savings:	8 years
Installation Rate:	70%
TRC:	2.62

C&I Energy Efficiency Program

Measure: Commercial Advanced Lighting
Unit is 1 kW connected load savings

Annual kWh Saved:	4,252
Winter Demand Savings:	0.45
Summer Demand Savings:	0.85
Lifetime of Savings:	10 years
Installation Rate:	100%
TRC:	2.22

Measure: Industrial Compressed Air

Annual kWh Saved:	3,800
Winter Demand Savings:	0.30
Summer Demand Savings:	0.75
Lifetime of Savings:	7 years
Installation Rate:	0
TRC:	1.62

Load Control Program

Measure: Water Heater >40 gals

Annual kWh Saved:	10
Winter Demand Savings:	0.52
Summer Demand Savings:	0.37
Lifetime of Savings:	20 years
Installation Rate:	100%

Measure: Central Air Conditioning

Annual kWh Saved:	5
Winter Demand Savings:	0.0
Summer Demand Savings:	1.0
Lifetime of Savings:	20 years
Installation Rate:	100%

TRC for Load Control Program	2.68

1 Savings numbers are "ex ante" or as planned gross savings except where noted.
2 Reported savings for CFLs are adjusted by the install rate of 70%.
3 Total Resource Cost (TRC) is an overall program benefits/costs analysts ratio.

Resources

Big Sandy RECC	bigsandyrecc.com
Blue Grass Energy	bgenergy.com
Clark Energy	clarkenergy.com
Cumberland Valley Electric	cumberlandvalley.coop
East Kentucky Power Cooperative	ekpc.coop togetherwesaveky.com simplesaver.coop
Farmers RECC	farmersrecc.com
Fleming-Mason Energy	fme.coop
Grayson RECC	graysonrecc.com
Inter-County Energy	intercountyenergy.net
Jackson Energy	jacksonenergy.com
Licking Valley RECC	lvrecc.com
Nolin RECC	nolinrecc.com
Owen Electric	owenelectric.com
Salt River Electric	srelectric.com
Shelby Energy	shelbyenergy.com
South Kentucky RECC	skrecc.com
Taylor County RECC	tcrecc.com
Touchstone Energy	touchstonenergy.com togetherwesave.com

4775 Lexington Road, 40391
P.O. Box 707,
Winchester, KY 40392-0707
Telephone: 859-744-4812
Fax: 859-744-6008
www.ekpc.coop

EKPC DSM Program (January 1, 2015 - June 30, 2015) ACTUALS					
Residential Programs	**Participation**	**Annual Energy Savings (MWh)**	**Summer Demand Savings (MW)**	**Winter Demand Savings (MW)**	**2015 Program Costs**
CFLs	31306	657	0.125	0.110	$ 32,094
Button up	492	822	0.636	0.193	$ 350,314
Button up level 2	1	4	0.004	0.001	$ 14,816
Button up level 3	0	0	0.000	0.000	$ 5,680
Heat Pump 13 SEER	209	1,479	0.038	0.000	$ 353,686
Heat Pump 14 SEER	65	490	0.021	0.000	$ 114,585
Heat Pump 15 SEER or higher	115	917	0.518	0.000	$ 274,718
HVAC Duct seal	146	152	0.044	0.142	$ 83,383
TSE Home Presc	54	139	0.032	0.134	$ 85,396
TSE Home HERS 79 or lower	174	447	0.104	0.432	$ 253,396
TSE Homes 80-85	0	0	0.000	0.000	$ 9,796
Appliance Recycling	366	255	0.037	0.026	$ 89,082
ENERGY STAR Refrigerators	446	45	0.007	0.004	$ 56,191
ENERGY STAR Freezers	40	3	0.000	0.000	$ 7,378
ENERGY STAR Dishwashers	340	27	0.003	0.003	$ 26,221
ENERGY STAR Clothes Washers	340	119	0.010	0.024	$ 47,702
ENERGY STAR Heat Pump Water Heater	22	48	0.004	0.011	$ 17,261
ENERGY STAR Heat Pumps	231	186	0.069	0.000	$ 79,750
ENERGY STAR Air Conditioner	16	8	0.008	0.000	$ 9,418
ENERGY STAR Manufactured Homes	0	0	0.000	0.000	$ 6,860
CARES Low Income Program	0	0	0.000	0.000	$ 6,860
Totals	**34,363**	**5,797**	**1.661**	**1.079**	**$ 1,924,586**
C&I Programs	**Participation**	**Annual Energy Savings (MWh)**	**Summer Demand Savings (MW)**	**Winter Demand Savings (MW)**	**2015 Program Costs**
Commercial Lighting	72	5,100	1.020	0.551	$ 398,641
Compressed air	1	552	0.109	0.004	$ 15,000
Totals	**73**	**5,652**	**1.129**	**0.555**	**$ 413,641**
Direct Load Control Program	**Participation**	**Annual Energy Savings (MWh)**	**Summer Demand Savings (MW)**	**Winter Demand Savings (MW)**	**2015 Program Costs**
DLC Air Cond	1382	7	1.382	0.000	$ 647,012
DLC Water heater	958	10	0.354	0.498	$ 636,388
Totals	**2340**	**16**	**1.736**	**0.498**	**$ 1,283,400**

EKPC DSM Program (July 1, 2015 - December 31, 2015) FORECAST					
Residential Programs	**Participation**	**Annual Energy Savings (MWh)**	**Summer Demand Savings (MW)**	**Winter Demand Savings (MW)**	**2015 Program Costs**
CFLs	31306	657	0.125	0.110	$ 33,919
Button up	492	822	0.636	0.193	$ 359,441
Button up level 2	1	4	0.004	0.001	$ 23,943
Button up level 3	0	0	0.000	0.000	$ 10,244
Heat Pump 13 SEER	209	1,479	0.038	0.000	$ 358,250
Heat Pump 14 SEER	65	490	0.021	0.000	$ 119,149
Heat Pump 15 SEER or higher	115	917	0.518	0.000	$ 279,282
HVAC Duct seal	146	152	0.044	0.142	$ 88,860
TSE Home Presc	54	139	0.032	0.134	$ 89,960
TSE Home HERS 79 or lower	174	447	0.104	0.432	$ 257,960
TSE Homes 80-85	0	0	0.000	0.000	$ 14,360
Appliance Recycling	366	255	0.037	0.026	$ 104,598
ENERGY STAR Refrigerators	446	45	0.007	0.004	$ 58,799
ENERGY STAR Freezers	40	3	0.000	0.000	$ 9,986
ENERGY STAR Dishwashers	340	27	0.003	0.003	$ 28,829
ENERGY STAR Clothes Washers	340	119	0.010	0.024	$ 50,310
ENERGY STAR Heat Pump Water Heater	22	48	0.004	0.011	$ 19,869
ENERGY STAR Heat Pumps	231	186	0.069	0.000	$ 82,358
ENERGY STAR Air Conditioner	16	8	0.008	0.000	$ 12,026
ENERGY STAR Manufactured Homes	100	1,195	0.051	0.288	$ 441,860
CARES Low Income Program	25	118	0.020	0.046	$ 74,360
Totals	**34,488**	**7,110**	**1.732**	**1.413**	**$ 2,518,354**
C&I Programs	**Participation**	**Annual Energy Savings (MWh)**	**Summer Demand Savings (MW)**	**Winter Demand Savings (MW)**	**2015 Program Costs**
Commercial Lighting	72	5,100	1.020	0.551	$ 398,641
Compressed air	1	552	0.109	0.004	$ 15,000
Totals	**73**	**5,652**	**1.129**	**0.555**	**$ 413,641**
Direct Load Control Program	**Participation**	**Annual Energy Savings (MWh)**	**Summer Demand Savings (MW)**	**Winter Demand Savings (MW)**	**2015 Program Costs**
DLC Air Cond	1382	7	1.382	0.000	$ 647,012
DLC Water heater	958	10	0.354	0.498	$ 636,388
Totals	**2340**	**16**	**1.736**	**0.498**	**$ 1,283,400**

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 12
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 12. Refer to page 26 of the IRP where it states, "EKPC has established a ramp-up period of six years (2015-2020) during which time it plans to steadily increase investment in DSM resources so that the goal of 1% annual retail savings by year 2020 can be attained." By year, explain how EKPC plans to meet its 1 percent goal.

Response 12. The following table shows how EKPC plans to reach its 1% goal by 2020 through steadily increasing its investment in DSM resources:

Year	Savings goal (% of retail savings)
2015	0.20%
2016	0.28%
2017	0.40%
2018	0.60%
2019	0.80%
2020	1.00%

To achieve the 1% goal, additional DSM Programs will be required as well as possible adjustments to existing DSM Programs. EKPC's existing DSM Programs are performing, but the goal is to increase participation. Therefore, the DSM Steering Committee is evaluating the existing DSM programs and may adjust several as EKPC focuses on driving participation higher. The DSM Steering Committee is also evaluating adding new DSM programs identified in this IRP. Both actions will increase participation and kWh savings to meet the goals.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 13
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 13. Refer to page 28 of the IRP regarding EKPC's response to Staff's recommendation in the Staff Report on the 2012 IRP for bidding its peak savings from DSM into the PJM capacity markets. Explain how EKPC offered its peak demand savings into the PJM capacity markets and the results of that process.

Response 13. The PJM Demand Response ("DR") market provides financial compensation to utilities for load reduction capacity when PJM system reliability necessitates the need for reduced load to maintain system reliability. Since joining PJM, load reduction capabilities from EKPC's interruptible program and Direct Load Control program has participated in the PJM DR market. EKPC follows the PJM DR market processes for participation that includes:

- Individually identifying each interruptible program participant;
- Nominating the available MW load reduction from each interruptible participant;

- Providing actual metered usage data from each interruptible participant after an event or during the required annual performance test of each participant;
- Providing the Direct Load Control switch installation amounts on water heaters and air conditioner units;
- Utilizing the PJM deemed kW drop per water heater switch and air conditioner switch to create a total MW reduction capability; and
- Performing the PJM required DLC switch operability study to determine the percent of switches operating properly.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 14
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 14. Refer to page 32 of the IRP regarding PJM transition reports where it states, "In 2015, EKPC can offer a full 12 month view from April 1, 2014 through March 15, 2015. However, this 12 month view will not be coincident with the PJM 12 month operating year." Explain what impact(s), if any, the non-coincident operating year has on the PJM transition reports.

Response 14. There are certain charge codes that are only billed on an annual basis and those occur on the last bill in May. By going from April through March, the charge codes billed for the previous operating year in May will reflect against the operating statistics for the year starting in June. It makes an awkward, and possible misleading, comparison. EKPC filed its second annual report on July 31, 2015 and reported on the operational year from June 1, 2014 through May 31, 2015.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 15
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 15. Refer to page 36 of the IRP where it states:

> The official Board approved load forecast includes the impacts of a 5-year DSM plan. This plan consists of existing DSM programs. This plan assumes no new programs and no new participants after the fifth year. A separate DSM plan was developed for inclusion in the capacity plan as a resource that includes new programs. Details are in Section 5.0 - Demand Side Management of this report.

Explain whether the Board supports the expansion of DSM programs and spending discussed in Section 5 of the IRP.

Response 15. At the April 2015 EKPC Board of Directors meeting, the Board of Directors approved the IRP in its entirety including the expansion of DSM programs and spending noted in Section 5 of the IRP.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 16
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 16. Refer to pages 36 and 38-40 of the IRP. The second and third sentences in the last paragraph on page 36 indicate the load forecast approved by EKPC's Board includes only the impacts of existing DSM programs. The tables on pages 38-40 all include a column with the heading "Additional Demand-Side Management." Confirm that these columns reflect the additional impacts of EKPC's existing DSM programs.

Response 16. The values under "Additional Demand-Side Management" in the tables on pages 38-40 refer only to additional DSM impacts that result from the programs included in the 5-year plan which is reflected in the load forecast as described on page 36. This plan consists of existing DSM programs and assumes there are no new programs or new participants after the fifth year. The impacts of the separate DSM plan developed for inclusion in the capacity plan as a resource that includes new programs are shown in Demand Side Management section of the IRP.

EAST KENTUCKY POWER COOPERATIVE, INC.
PSC CASE NO. 2015-00134
FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 17
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 17. Refer to Table 3-5 on pages 41-42 of the IRP. With actual data showing annual transmission losses averaging 3.05 percent for the years 2003-2013 and 2.2 percent for the years 2008-2013, explain why they are projected to be between 3.3 and 3.5 percent in each year of the forecast period ending in 2029.

Response 17. EKPC observed the lower-than-expected transmission loss values for 2012 and 2013. However, EKPC was unable to substantiate why those values would have decreased on a permanent basis. There were no structural improvements documented to support a permanent reduction in transmission losses. Therefore, EKPC used its historical assumption in developing the load forecast going forward. If the observable loss percentage continues to trend to the lower loss value, then EKPC will modify this assumption in future forecasts.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 18
RESPONSIBLE PERSONS: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 18. Refer to page 44 of the IRP where it states, "EKPC plans to conduct a comprehensive review of all aspects of its load forecasting process and evaluate possible enhancements. These will be submitted to Rural Utilities Service ("RUS") in the next work plan; due December 2015."

Request 18a. State when the comprehensive review of all aspects of EKPC's load forecasting process will be completed.

Response 18a. The review is underway and is scheduled to be completed in December 2015.

Request 18b. Identify and describe any enhancements EKPC has made to date to its load forecasting process. Consider this an ongoing request to be updated as information becomes available.

Response 18b. As there are many inputs to the forecast, time does not permit evaluating each aspect every year. The focus for 2015 is the economic and normal weather assumptions. Currently, EKPC is comparing the economic projections from three vendors. The purpose of this exercise is to identify which vendor has the best performance for counties served by EKPC member systems. This vendor will be used to supply the economic assumption inputs for the next load forecast update. Additionally, the normal weather assumptions for each weather station used are being analyzed. Adjustments will be made to the models as appropriate. Likewise, the method of weather normalizing peak demands is being revisited to better reflect extreme events.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 19
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 19. Refer to page 45 of the IRP where it states:

> As of 2013, approximately 79 percent of all new households have electric heat and about 89 percent of all new households have electric water heating. Nearly all new homes will have electric air conditioning, either central or room.
>
> In EKPC's service area, electricity is the primary method for water heating and home heating. Around 86 percent of all homes have electric water heating, and about 63 percent have electric heat as a primary fuel. In 2013, nearly 58 percent of EKPC's member system retail sales were to the residential class and residential customer use averaged 1,175 kWh per month.

Request 19a. Provide the type of housing stock in the areas served by EKPC and its Member Cooperatives.

Response 19a.

Type of home by age of home

	2010 or later	2000 to 2009	1990 to 1999	1980 to 1989	1970 to 1979	1969 or earlier	Total by type
Single-family home	2.0%	16.7%	14.4%	12.1%	14.7%	19.1%	79.0%
Manuf/Mobile home	0.9%	5.4%	6.0%	2.8%	2.6%	0.8%	18.4%
Multi-family home	0.3%	0.5%	0.8%	0.4%	0.3%	0.3%	2.6%

Source: 2013 Membership Energy Use Survey

Request 19b. For the most recent period for which the information is available, provide the average monthly residential usage for all electric homes and for non-all electric homes on the EKPC system.

Response 19b. Based on load research data, the estimated average monthly usage for an all-electric home is 1,913 kWh. An average non-all-electric home uses 924 kWh per month.

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REQUEST 20
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 20. Refer to the first and last paragraphs on page 45 of the IRP, which reflect that the percentages of new households and existing homes with electric water heating are very similar, 89 and 86 percent, respectively. The percentages of electric heat in new households and existing homes do not track as closely, at 79 and 63 percent, respectively. Explain why the percentage of electric heat in new households exceeds the percentage for existing homes to this degree.

Response 20. This has been a normal trend for our service territory. In historical surveys, customers indicated non-electric sources such as wood and propane and natural gas as the main source for heat. In more recent years, customers have been opting for electric heat sources such as efficient heat pumps. Conversely, members in this service territory have chosen electric water heaters consistently over time.

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REQUEST 21
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 21. Refer to pages 45 and 64 of the IRP. With 79 percent of new households having electric heat, explain why, as stated in the paragraph headed "Residential Sales Forecast," projected average use per residential customer remains relatively flat over the period covered by the IRP.

Response 21. While 79% of all new homes do have electric heat, there is very little growth expected in residential customer counts for the service territory. Year-over-year change in residential customer counts do not exceed 1% in this forecast period. This, combined with the improvement in appliance efficiencies, leads us to project the flat average use per residential customer.

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REQUEST 22
RESPONSIBLE PERSONS: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 22. Refer to page 48, Table 3-7, of the IRP. Explain, by year, the fluctuation in residential usage from 2009 to 2013.

Response 22. The Residential Class is very weather sensitive. The fluctuations from year to year are due primarily to weather. For example, the following table illustrates the colder winter and hotter summer that resulted in higher residential energy usage in 2010 compared to 2009 and 2011.

Degree Days - Lexington Weather Station					
	2009	2010	2011	2012	2013
Heating Degree Days	4651	4893	4391	3972	4664
Cooling Degree Days	1028	1585	1308	1362	1231
Annual	5679	6478	5699	5334	5895

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REQUEST 23

RESPONSIBLE PERSON: **Julia J. Tucker**

COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 23. Refer to Table 3-9 on page 49 of the IRP. Provide the 2014 information for the weather normalized annual energy sales and energy requirements.

Response 23. Please see the following table.

Table 3-9
EKPC Weather Normalized Annual Energy Sales (MWh) and Energy Requirements (MWh), 2009-2014

	2009	2010	2011	2012	2013	2014
Total Retail Sales by Member Systems						
Recorded	11,465,845	12,233,213	11,809,737	11,402,901	11,888,031	12,353,039
Weather Normalized	11,567,176	11,868,087	11,888,244	11,504,803	11,899,278	12,183,840
EKPC						
Recorded	12,370,308	13,376,292	12,666,998	12,190,070	12,644,590	13,163,516
Weather Normalized	12,479,632	12,977,048	12,751,204	12,299,006	12,656,553	12,994,317

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REQUEST 24
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 24. Refer to page 53 of the IRP where it states, "EKPC set a goal of achieving the equivalent of 1% of annual retail sales in new DSM annual kWh savings each year." Explain how EKPC determined the goal of achieving the equivalent of 1-percent annual retail sales in new DSM annual kWh savings each year. Provide any studies, reports, or other information that supports EKPC's goal.

Response 24. EKPC set the goal of achieving 1% of annual retail sales in new DSM kWh savings each year to be challenging, yet achievable. In establishing the goal, EKPC examined its recent historical results, expected operating environment in the future, and comparative goals set by other similarly-situated states and utilities.

At the time the goal was set in 2014, EKPC's most recent historical results showed new annual kWh savings of approximately 0.14% of sales.

EKPC realized that the case for increasing its DSM goals was compelling. The business case for DSM includes its ability to meet EKPC's energy resource needs at low costs to its Members, benefiting financially from participating in the PJM markets, meeting its regulatory mandates, deferring major capital expenditures, and serving its retail customers better.

With the general direction set, EKPC next set out to establish a specific quantitative goal. To do that, it first examined the recent performance of utilities and states as well as the performance targets set by states which have energy efficiency resource standards (EERS). For states in EKPC's region which have one, the EERS's vary from 0,7% to 1.5%. These include the states of Arkansas, Illinois, Iowa, Michigan, Minnesota, and Pennsylvania. Nationally, ACEEE found that in 2013, states with an EERS achieved incremental electricity savings of 1.1% of retail sales on average, compared to average savings of 0.3% in states without an EERS.

EKPC also reviewed the performance of energy efficiency in the Pacific Northwest region of the United States to gauge what is achievable on a long term basis. In 2012, three of the four states (Idaho, Montana, and Washington) reported electricity savings of below 1% of retail sales. Only Oregon had reported electricity savings above 1% (1.09%).

In order to set the specific goal for EKPC, it next examined key factors that impact achievable levels of energy efficiency in a state or service territory. These factors include price of electricity, income, other demographics, and social attitudes toward efficiency. EKPC compared its service territory to other regions. The comparisons create a range of achievable levels for EKPC. In each case, the comparison leads to the conclusion that EKPC should expect lower achievable savings than utilities in most other states. EKPC's customer base is more heavily residential, more rural, poorer, has a much higher share of households headed by a person over the age of 65, and the housing stock has a much greater share of manufactured and mobile homes than the state as a whole.

The goal of 1% of annual retail sales in new DSM kWh savings is challenging, but it is achievable. This was confirmed when the GDS study showed sufficient remaining achievable savings potential to achieve the 1% of retail sales goal for the next 10 years.

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REQUEST 25
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 25. Refer to the forecast model summaries for residential sales and small commercial sales on page 62 of the IRP. Provide a description of how the two base heating degree day ("HDD") variables, Base 55 HDD and Base 30 HDD, are used.

Response 25. Base 55 HDD is meant to pick up heating use in the residential and small commercial sales models. Multiple bases were tested and it was found that a base of 55 degrees for HDD resulted in the highest level of significance.

In addition to the primary base 55 HDD variable, a base 30 HDD variable is used. This variable is intended to pick up any additional heating use that would be present in colder temperatures but that would likely not be present in temperatures between 30 and 55 degrees, for example, space heaters.

Both variables are used as explanatory variables in the monthly residential energy sales and monthly small commercial energy sales models.

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REQUEST 26
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 26. Refer to the tables on pages 64-66 of the IRP, which show historical and projected customers and sales for residential, small commercial, and large commercial and industrial customer classes. Explain why the annual percent change in sales for the large commercial and industrial class shows greater variations in some years after 2015 compared to the variations for the residential or small commercial classes.

Response 26. The demand and energy usage associated with the large commercial and industrial customers is much greater than those associated with the other classes. Any change in number of customers or customer usage results in a significant percentage change to the class. These changes result in greater year-to-year variations.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 27
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 27. Refer to the "Peak Demand and Scenario Results" section on pages 70-72 of the IRP and to the Executive Summary on pages 4 and 6 of the IRP. Pages 4 and 6 each contain a reference to the issue of energy prices during the winter peak season. As to the Low Case, Base Case, and High Case scenarios discussed on pages 70-72, explain whether the High Case is considered the only scenario under which EKPC may experience negative consequences.

Response 27. EKPC hedges itself against negative consequences by evaluating its potential load position as compared to its generation position. EKPC ensures that its net cost to serve load does not exceed certain price points by securing known generation resources to cover load demand expectations. It is the difference between load costs and generation revenues within the PJM market place that drives potential detrimental cost consequences. If generation resources available to provide revenue to EKPC are less than the cost to serve native load, then EKPC experiences detrimental cost consequences. This could occur with the load forecast Base or High Case scenarios.

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REQUEST 28
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 28. Refer to pages 77-78 of the IRP where it states:

> EKPC implemented an existing manufactured home improvement research project. The goal of the project is to quantify the annual kWh and KW savings for improvements to typical post 1976 manufactured homes and compare those savings to the implementation costs. Improvements were performed on 22 manufactured homes served by a member system having typical energy usage patterns. Improvements included the removal of existing insulation beneath the home floor, installation of open-cell spray foam insulation to the floor, and the installation of a vapor barrier on exposed ground. In addition to providing a permanent R-19 value insulation to the home floor, the spray foam also improves home air leakage by sealing the floor leaks and sealing the duct system air leaks. On an average, home air leakage was improved by more than 20%. EKPC is working with the member system to quantify the average reduction in kWh usage for the homes. Usage data will be analyzed after sufficient kWh usage data is captured during the heating and cooling seasons.

Request 28a. Describe the existing manufactured home improvement research project that was implemented and explain whether this project related to any existing DSM programs.

Response 28b. The existing manufactured home improvement research project was implemented as described on pages 77-78 of the IRP and cited in the introduction to this question. The project was conceived to address the fact that certain measures that are offered to single-family, stick-built homes in the Button-Up program cannot be practically installed in existing manufactured homes. This research project addressed the challenge of improving energy efficiency in existing manufactured homes by tailoring custom measures that are suitable for these homes.

Request 28b. Provide the average cost per home, and explain whether each project was cost-effective.

Response 28b. The average cost per home was approximately $4,200 per home, or $2.84 per square foot. The cost-effectiveness analysis is pending, and will be performed once sufficient kWh usage data have been captured to determine the kWh savings for the project.

Request 28c. If cost-effective, explain whether this existing manufactured home improvement research project could become part of EKPC's DSM portfolio.

Response 28c. Should the project prove cost-effective, the measure package could become part of EKPC's DSM portfolio.

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REQUEST 29
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 29. Refer to Table 8(3)(e)(1)-2, on page 99, of the IRP. Identify which new programs are being considered for implementation and explain whether all the Member Cooperatives will adopt these programs.

Response 29. The list of programs being considered includes programs of interest that have passed the Total Resource Cost benefit/cost analysis. Thus, all programs listed in Table 8.3(e)(1)-2 are being considered. The DSM Steering Committee has started reviewing the details for Exterior Lighting and has started reviewing the details for Home Energy Information, in particular their Pre-pay program. The steering committee will continue working through the details of these and the remaining listed programs and then determine which listed DSM program(s) will be developed and offered to all Member Systems. Each Member System individually determines the DSM programs they offer to their Members.

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REQUEST 30
RESPONSIBLE PERSON: Scott Drake
COMPANY: East Kentucky Power Cooperative, Inc.

Request 30. Refer to pages 102-108 of the IRP. Explain whether the projected number of participants after the first year are new or cumulative.

Response 30. The projected numbers of participants are cumulative.

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REQUEST 31
RESPONSIBLE PERSON: Scott Drake
COMPANY: East Kentucky Power Cooperative, Inc.

Request 31. Refer to pages 109-114 of the IRP. Explain whether the projected number of participants after the first year are new or cumulative.

Response 31. The projected numbers of participants are cumulative.

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REQUEST 32
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 32. Refer to page 160 of the IRP regarding nonutility generation. Identify and include the facility location, type, and amount of power generated for all distributed generation facilities in the EKPC territory. Identify all such facilities that are not metering facilities.

Response 32. There are currently four non-utility generating sources interconnected with the EKPC system. These include a distributed natural gas engine generator, a LFGTE facility, a hydro facility, and a wood-waste-to-steam facility. These facilities are all metered.

Location	Type	Capacity
McKee	NG Engine/Generator	1.0 MW
Irvine	LFGTE	1.6 MW
Burgin	Hydro	2.0 MW
Campbellsville	Wood-Waste-to-Steam	5.0 MW

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REQUEST 33
RESPONSIBLE PERSON: **Jeffrey M. Brandt**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 33. Identify any and all combined heat and power participants in the EKPC territory, as discussed on page 167 of the application. Include the location of the facilities, the type of facilities, and the amount of power produced.

Response 33. There is one such facility located in the EKPC territory. A cogeneration facility is located in Taylor County and is a waste-wood-to-energy and heat facility that consists of twin 61.4 million Btu per hour boilers with a 5 MW steam turbine generator capacity. EKPC has contracted through the Co-Gen Tariff with the facility to purchase any energy produced in excess of what the facility uses for its own production purposes. EKPC purchased 2,208 MWh in 2013 and 1,102 MWh in 2014 from this facility.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 34
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 34. On page 167 of its IRP, EKPC references the purchase of 2,208 MWh of energy from a cogeneration source. Identify the location of the cogeneration facility, the category of the facility, and the total amount of power produced by the facility.

Response 34. See response to Request 33.

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REQUEST 35
RESPONSIBLE PERSON: **Jeffrey M. Brandt**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 35. On page 167 of its IRP, EKPC states that it has evaluated, yet not contracted, with any wind project.

Request 35a. Identify and describe the parameters EKPC uses in evaluating a wind project.

Response 35a. Of primary importance when evaluating a proposed wind project is the potential to generate based on historic wind resource measurements at the proposed site. Typically, EKPC would expect the developer to have accumulated at least 3 years of wind speed data which, in combination with specific turbine designs, would indicate the potential capacity factor of the project.

Project developer credit rating is examined along with development experience to determine the likelihood of project success.

The value of the project's expected energy and capacity is then compared to expected market values to determine the overall long-term value of the resource.

EKPC must also take into consideration the location of the project. The passage of amendments to KRS 278.704 in the 2014 Regular Session of the Kentucky General Assembly has made the development of a wind project by a merchant electric generator in Kentucky considerably more difficult, if not practically impossible.

Request 35b. Explain whether EKPC has evaluated constructing, owning, and operating a wind facility.

Response 35b. As discussed on page 167 of the IRP, EKPC has partnered with NRCO to evaluate potential third-party developed wind projects. To date, EKPC has not evaluated constructing, owning, and operating a wind facility.

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REQUEST 36
RESPONSIBLE PERSON: **Jeffrey M. Brandt**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 36. Refer to the last full paragraph on page 167 of the IRP, which includes discussion of EKPC's landfill gas-to-energy ("LFGTE") projects. Concerning the city of Glasgow landfill LFTGE project, explain whether there is now a more specific time line than "late 2015" for when it is expected to go on line.

Response 36. The Glasgow LFGTE project is expected to be on-line and generating 1.0 MW of electricity by November 30, 2015. The project is currently under construction.

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REQUEST 37
RESPONSIBLE PERSON: **Jeffrey M. Brandt**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 37. On page 168 of the IRP, EKPC discusses installations of small solar facilities by member Cooperatives:

Request 37a. Other than South Kentucky RECC, is EKPC aware of any other cooperatives with solar facilities?

Response 37a. Grayson RECC is the first electric cooperative in Kentucky to install a solar electric system at its headquarters, which is served by Kentucky Power Company. The 10.8 kW solar electric system covers approximately 1,000 square feet. The system has been set up as a demonstrational and educational project. It will help Grayson RECC offset its own electric bill through the production of about 12,900 kWh of electricity each year. Other than net metering solar installations, EKPC is unaware of any other cooperatives with solar facilities.

Request 37b. Are any cooperatives installing solar generation as a source which would be exclusive of the wholesale member power supply contract?

Response 37b. Currently there are no cooperatives installing solar generation as a source which would be exclusive of the wholesale member power supply contract.

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REQUEST 38
RESPONSIBLE PERSON: **Jeffrey M. Brandt**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 38. On page 168 of the IRP, EKPC notes six member cooperative projects that have been approved by the EKPC Board of Directors that allow generation outside of the wholesale member power supply contract. Identify the member cooperative, type of generation, and generating capacity of each of the approved projects.

Response 38. There are currently six of these projects that have been approved by the EKPC Board of Directors. They include four projects in service, one project under construction, and one project in the design phase.

Cooperative	Type	Capacity	Status
Jackson Energy	NG Engine/Generator	1.0 MW	In service
Jackson Energy	LFGTE	1.6 MW	In service
Farmers RECC	Diesel Engine	3.6 MW	In service
Farmers RECC	LFGTE	1.0 MW	Construction
Salt River RECC	Hydro	2.0 MW	In service
Owen Electric	NG Engine	2.0 MW	Design

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REQUEST 39
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 39. Refer to Table 8.(4)(a)-1 on page 169 of the IRP.

Request 39a. Confirm that the total capacity reduction for the summer period in 2016 reflects the closing of the Dale units.

Response 39a. The total capacity reduction from summer of 2015 to 2016 is comprised of idling Dale 3 and 4 and the expiration of a 100 MW Power Purchase Agreement.

Request 39b. Under the terms of EKPC's membership in PJM, it is required to maintain a minimum summer season reserve margin. Explain whether EKPC's winter reserve margins, which are less than 1.0 percent in five of the years (2024-2028) in the table, have any relevance to its long-term planning.

Response 39b. PJM does not currently have a reserve requirement for the winter peak season. However, for EKPC to adequately ensure that it is following least cost planning protocols, it must consider the costs and risks associated with not maintaining an adequate winter reserve margin to hedge its cost exposure to the PJM market prices. The Commission's Order in Case No. 2014-00226 confirms that EKPC is financially exposed for the fuel costs incurred when its load exceeds its available generation capacity.

Request 39c. Using the amounts in the Total Capacity and Reserves columns in the table, Staff is unable to replicate many of the reserve margin percentages shown in the last column. Provide the calculations of the winter and summer reserve margin percentages for the first five years included in the table.

Response 39c. The reserves were calculated by adding total capacity, which is the existing capacity with total additions, and dividing by the load forecast. Below is the table detailing the first five years of the study period:

	2014 Load Forecast		Existing Capacity		Purchased Capacity		Total Capacity		% Reserves	
YEAR	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM
2015	3201	2324	3276	2772			3276	2772	2%	19%
2016	3225	2342	3176	2672	150		3326	2672	3%	14%
2017	3239	2366	2926	2672	400		3326	2672	3%	13%
2018	3250	2389	2926	2672	400		3326	2672	2%	12%
2019	3254	2403	2926	2672	400		3326	2672	2%	11%

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REQUEST 40
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 40. Pages 169-173 of the IRP contain EKPC's resource optimizer results with the five lowest cost plans shown in Table 8.5(a)-1 on page 171 and Table 8.5(a)-2 on page 172.

Request 40a. If not in another part of the IRP, provide the present value analysis results for these five plans and for the sixth lowest cost plan.

Response 40a. RTSim does not rank expansion plans by present worth. It ranks the plans based on system profit and risk parameters. EKPC takes these results and further defines annual costs and revenues in its financial forecast in a detailed manner. Only the most cost-effective plan was modeled in this detailed manner for the IRP. The financial results were provided in the original filing, Section 10.0. There was no sixth-best plan identified in RTSim. Specific data from RTSim follows:

Transaction Optimization

Seed: 15 Total tries: 2500 Narrow solution space 0 times

Best 1:	System profit:	298237.	Try: 24	Risk:	0.2402
Best 2:	System profit:	226717.	Try: 309	Risk:	0.2951
Best 3:	System profit:	169318.	Try: 333	Risk:	0.3441
Best 4:	System profit:	167549.	Try: 161	Risk:	0.3437
Best 5:	System profit:	163738.	Try: 272	Risk:	0.3502

Request 40b. Confirm that EKPC has chosen Plan 1 as its optimal resource plan.

Response 40b. Yes, the plan shown in the IRP (seasonal capacity purchases starting in 2016 and 2017, with additions of renewables in 2026, 2028, and 2029) is based on "Best 1" from the RTSIM output.

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REQUEST 41
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 41. Refer to page 4 of the Technical Appendix, Volume 1, Load Forecast ("Load Forecast"), Tables 1.1.1 and 1.1.2 and Table 6.2 on page 46.

Request 41a. Explain why Seasonal Residential customers are reported as a separate customer class even though only one member system uses this classification and the class sales are less than 0.1 percent of total sales.

Response 41a. For the sake of consistency, EKPC elects to report and model based on each member system's reported classes on the RUS Form 7. This allows for data reporting and the load forecast results to accurately reflect how a given member system's customers and sales are allocated.

Request 41b. Explain why this customer class is expected to have customer growth of 1.4 percent annually after historically declining at an increasing rate.

Response 41b. Member systems may reclassify customers from one class to another as deemed appropriate for accounting and reporting purposes. The Seasonal Class has experienced such reclassifications. Although the residential seasonal class has a negative historical growth rate, this is due to a reclassification on behalf of one member system in 2012. The member system that currently reports seasonal residential customers as a stand-alone class experienced growth from 2012 to 2013. The year end 2014 customer count is an increase of 20 new customers, further indicating this class is not declining.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 42
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 42. Refer to page 19 of the Load Forecast which states, "Member systems remain in regular contact with their largest consumers and are generally aware of current production and future expansion plans, so they project energy sales for existing consumers and identified expected new consumers in this class for the next 3 years," and page 9 of Exhibit LF-1 which states, "large commercial and industrial accounts are unlikely to alter operations in response to small changes in price, but there is certainly a point where, if price goes too high or margins are too low for a company, they might stop operation altogether or shut down a shift, causing a large response to price at some certain threshold." Explain if EKPC or its member systems have discussed this "certain threshold" with large industrial or commercial customers or have any means to predict when these customers will have significant changes in load other than "regular contact."

Response 42. No, there are many factors that influence their decisions to maintain, reduce or expand production that are not related to electricity prices. The only way for EKPC and its members to gauge these changes is through regular contact with their customers.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 43
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 43. Refer to pages 21 and 22 of the Load Forecast, section 3.4 - Development of Alternative Economic and Weather Scenarios.

Request 43a.. Explain why changes in energy consumption were considered in the forecast for the Small and Large Commercial class but not for the Residential class.

Response 43a. Changes in energy consumption were considered in the residential class in the scenarios. When the weather and price assumptions are changed, the resulting energy for the residential class changes accordingly.

Request 43b. Explain why the Industrial customer class was not included.

Response 43b. Member systems remain in regular contact with their largest consumers and are generally aware of current production and future expansion plans.

The industrial class generally manages its electric usage very efficiently to provide maximum profits to its enterprises. Additionally, this class is not weather sensitive like the other classes.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 44
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 44. Refer to the Load Forecast, Section 4.0 - Key Assumptions, pages 25-36. Provide the source for the assumptions not derived from EKPC's customer survey.

Response 44. The assumptions about household growth, employment growth, and total real personal income growth are based on the June 27, 2014 vintage of county-level household, employment, and total real personal income forecasts provided by IHS Global Insight.

Assumptions about electric appliance efficiency trends are from Itron's 2014 Residential Statistically Adjusted End-Use spreadsheets, which are in turn based on the Energy Information Administration's (EIA) 2014 Annual Energy Outlook.

The DSM assumptions are based on studies performed by EKPC's Corporate Technical Services Department.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 45
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 45. Refer to page 26 of the Load Forecast, which shows the results of the forecast of households through 2034. For each of the seven regions to which its member-owners are assigned, provide "total households" and the "member system portion," along with the corresponding growth rates, for the years of the forecast 2018, 2023, 2028, and 2033, shown on the graph on the page.

Response 45. Please see the following tables.

5-Year Growth Rates (2013-2018)				
Region	**County Total**	**County Total 5-Year Growth Rate**	**Member System Portion**	**Member System 5-Year Growth Rate**
Central	298,472	1.5%	97,790	1.4%
East	214,042	0.1%	112,935	0.3%
North	191,649	1.3%	99,677	1.4%
North Central	176,804	1.8%	118,320	1.6%
North East	111,665	0.6%	90,968	0.8%
South	118,812	0.8%	111,570	0.8%
South Central	127,849	1.1%	26,538	1.0%

10-Year Growth Rates (2013-2023)				
Region	**County Total**	**County Total 10-Year Growth Rate**	**Member System Portion**	**Member System 10-Year Growth Rate**
Central	316,722	1.3%	104,236	1.3%
East	213,826	0.0%	114,154	0.3%
North	201,970	1.2%	106,720	1.4%
North Central	192,632	1.8%	127,267	1.5%
North East	114,611	0.5%	94,408	0.8%
South	123,683	0.8%	116,144	0.8%
South Central	132,580	0.9%	27,626	0.9%

15-Year Growth Rates (2013-2028)				
Region	**County Total**	**County Total 15-Year Growth Rate**	**Member System Portion**	**Member System 15-Year Growth Rate**
Central	334,447	1.2%	110,916	1.3%
East	213,772	0.0%	115,348	0.2%
North	211,866	1.1%	113,843	1.4%
North Central	209,329	1.7%	136,563	1.5%
North East	117,523	0.5%	97,877	0.8%
South	128,873	0.8%	121,018	0.8%
South Central	138,004	0.9%	28,744	0.9%

20-Year Growth Rates (2013-2033)				
Region	**County Total**	**County Total 20-Year Growth Rate**	**Member System Portion**	**Member System 20-Year Growth Rate**
Central	349,795	1.2%	116,360	1.2%
East	214,060	0.0%	116,336	0.2%
North	221,896	1.0%	120,500	1.3%
North Central	222,741	1.6%	144,133	1.4%
North East	119,847	0.5%	100,508	0.7%
South	132,700	0.8%	124,611	0.8%
South Central	143,249	0.9%	29,687	0.8%

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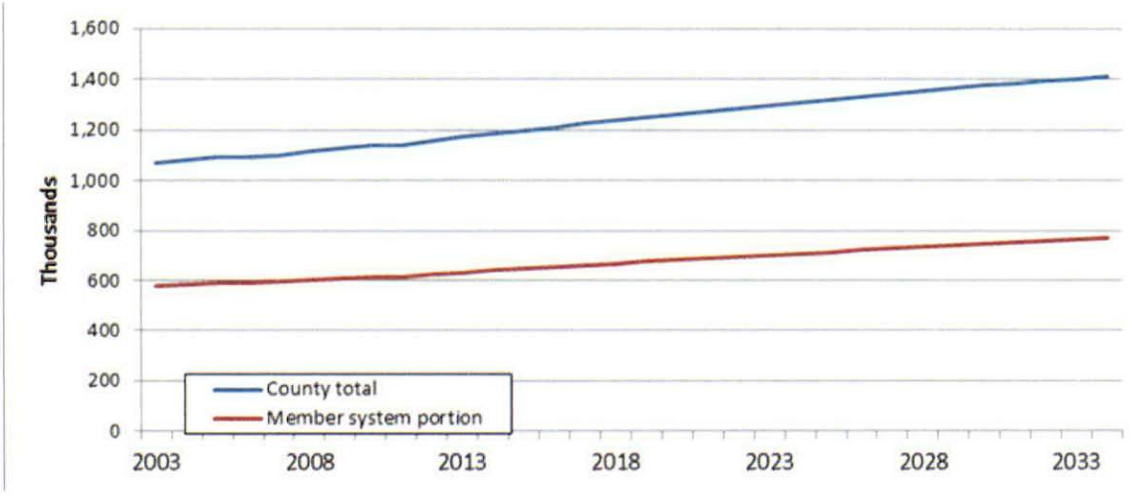
COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 46
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 46. Refer to pages 26-27 of the Load Forecast. The first sentence on page 26 indicates that, in 2034, "total households" will have increased to 1,667,273, while the "member system portion" will have increased to 768,416. The numbers for 2034 in the table on page 27 with the heading "Regional Households" total 1,414,682, which does not match either of the numbers in the first sentence on page 26. Explain what the table on page 27 represents.

Response 46. Please see updated table below.



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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 47
RESPONSIBLE PERSON: **Julia J. Tucker**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 47. Refer to the Load Forecast, Exhibit LF-1, page 1, Section 2 where it states, "Additionally, results of the study provide the input necessary to conduct sensitivity analysis in EKPC's next load forecast and IRP."

Request 47a. Provide a general description of how elasticities of demand have been factored into EKPC's load forecasts.

Response 47a. EKPC assumes the price elasticity of demand rather than estimate it within the model. When creating the 2014 Load Forecast, EKPC used an assumption of -0.25 for the residential classes for all owner-member cooperatives. This implies that a 1% increase in the price of electricity for a given customer class of a given owner-member cooperative results in only a 0.25% decrease in electric usage by those customers.

Request 47b. Identify any load forecasting price sensitivity analysis that was performed for purposes of load forecasting in the current IRP.

Response 47b. There are studies that have shown substantial variation and a wide range of uncertainty regarding the price elasticity of demand for electricity across customer classes, across states, and over time. The assumption EKPC employed was based upon historical studies and was further validated by the results of the study conducted by GDS Associates, Inc. (Exhibit LF-1, IRP filing). The only price sensitivities incorporated in this forecast are within the construct of the high and low cases described in Section 7 of the Load Forecast, Technical Appendix, Volume 1, of the IRP filing.

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REQUEST 48
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 48. Refer to the Load Forecast, Exhibit LF-1, page 6 which states, "A negative coefficient for per capita income is theoretically incorrect, indicating average household energy consumption declines as income increases. In such instances, per capita income was removed from the models." Explain whether customers' increasing ability to purchase more energy efficient appliances or employ better weatherization methods as household income increases could account for this relationship.

Response 48. Customers' increasing ability to purchase more energy efficient appliances or employ better weather normalization methods probably contributes to the per capita income coefficient having a negative sign in some instances. There are other factors in addition to those identified by Staff that could contribute to a negative per capita income coefficient. For example, high-income householders could purchase a vacation home or build a structure (e.g., work shop or barn), all of which could have separate meters, that over a twelve-month period have lower consumption than the system average, which would be indicative of an indirect relationship between

consumption and income. The degree to which these factors influence the relationship between energy consumption and per capita income has not been researched.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 49
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 49. Refer to Table 1-2 on page 5, of the Potential Study, which shows the annual program budgets associated with the maximum achievable TRC scenario. Provide a similar table for the 37.3 percent economic TRC from Figure 1-2 on page 4 of the Potential Study with the amounts shown by customer class.

Response 49. The Economic Potential Budget Summary is on pages See page 3 of this response.

The projected budgets for the economic potential scenario are astronomically higher than the achievable potential budgets. This is especially true for the residential class where, for example, the 2015 budget for the economic potential is 99 times the budget for the achievable potential scenario. This is not what one would expect on the basis of the energy savings, where the economic potential is about 5.5 times the achievable potential for residential. This calls for some explanation.

The methodology for determining achievable potential favors measures with attractive participant economics, including relatively low measure cost and low payback. The economic potential includes high cost measures with long paybacks.

Measures with higher costs and longer paybacks result in lower adoption rates for the achievable potential estimates. Very few of these high cost, more marginally cost-effective measures get installed in the achievable scenario. Since adoption rates are not considered in the economic potential scenario, many more of these high cost measures get installed.

The result is that for a measure like ductless mini-splits, with a high first cost and a long payback, GDS estimated 41 installations in 2024 under the achievable potential scenario. On the other hand, the economic potential scenario projected 19,841 installations of mini-splits based entirely on the fact that it passed the TRC.

This result illustrates why the economic potential is not realistic. The whole point of preparing the achievable potential scenario is to account for the real-world factors that determine the actual behavior of customers. Few if any customers are willing to spend $5,000 for a measure with a payback of over 15 years, for example. By the same token, directing utility expenditures toward expensive measures with marginal economics is not a wise use of ratepayer funds either.

Economic Technical Potential Theoretical Budgets										
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Residential	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574	$2,095,841,574
Commercial	$14,277,669	$14,277,669	$14,277,669	$14,277,669	$14,277,669	$14,277,669	$14,277,669	$14,277,669	$14,277,669	$14,277,669
Industrial	$85,864,866	$85,864,866	$85,864,866	$85,864,866	$85,864,866	$85,864,866	$85,864,866	$85,864,866	$85,864,866	$85,864,866
Total	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109	$2,195,984,109

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 50
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 50. Explain whether any study was performed by GDS as to program potential of EKPC's existing and proposed DSM programs.

Response 50. GDS's approach was to estimate the remaining energy efficiency potential by class and measure. In so doing, GDS provided potential estimates of the measures that are included in EKPC's existing and proposed energy efficiency programs. However, GDS did not report results by program. EKPC bundled the results by measure for use in its program savings projections in this IRP.

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REQUEST 51
RESPONSIBLE PERSON: Scott Drake
COMPANY: East Kentucky Power Cooperative, Inc.

Request 51. Refer to page DSM-6 of the Potential Study. Provide examples of "lessons learned in the field" and how they were incorporated into the program designs.

Response 51. Page DSM-6 of the DSM Analysis report describes the major enhancements to DSM planning since the 2012 IRP. One of those enhancements was incorporating lessons learned in the field as well as best practices in the industry to improve program designs.

One example of this occurred with the Energy Star Manufactured Home program. Its predecessor program relied on incentives at the point of sale to encourage customers to order homes with energy efficiency measures. This approach proved to be ineffective at penetrating the market. EKPC learned that it needed to move upstream and work with the home manufacturers in order to increase the number of Energy Star manufactured homes in its service territory.

A second example is the Air Source Heat Pump Retrofit Program. Field staff observed that EKPC had the opportunity to incentivize higher efficiency heat pumps that were becoming available in the service territory. As a result, EKPC modified the program design to include tiered incentives according to heat pump efficiency – higher rebates for more efficient equipment.

The third example comes from the Touchstone Energy Home program. EKPC's experience working with home builders led to the addition of two performance paths in addition to the prescriptive path for meeting the efficiency requirements of that program.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 52
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 52. Refer to page DSM-8 of the Potential Study. Explain if member systems use the *DSMore* software to individually evaluate their DSM programs, or if this software is only utilized by EKPC. Explain if all member systems use the same or comparable tracking software.

Response 52. The DSMore software is only utilized by EKPC. However, EKPC conducts DSMore analysis for individual members as needed and when requested by a Member cooperative. All Member-systems, and EKPC, use the same DSM tracking software package.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 53
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 53. Refer to page DSM-11 of the Potential Study and page 40 of the IRP. Explain why additional DSM is forecasted to decline beginning in 2023 and to be below 1 percent of total requirements starting in 2027 if the "ramp-up period" is suggested to end in 2020 with "participation levels that consistently achieve the 1% goal thereafter (from 2020-2029)."

Response 53. Table 3-4 on page 40 of the IRP is a load forecasting exhibit. It only shows the levels of existing DSM that are accounted for in the load forecast – five years of implementation. In addition, these values are cumulative. The 1% of retail sales goal applies to both existing and new DSM combined, and is an incremental annual goal, not a cumulative goal. The additional DSM in this table declines beginning in 2023 because several programs have measure savings lives of 7-8 years. Measures installed in 2015 with a measure savings life of 7 years will stop producing savings in 2022, for example.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 54
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 54. Refer to page 35 of the Potential Study where it states, "GDS has used average line losses to adjust kWh and kW savings at the customer meter to the generation level of the electric grid."

Request 54a. Explain whether the average line losses to adjust kWh and kW savings at the customer meter to the generation level of the electric grid includes only EKPC's line losses.

Response 54a. Yes, the average line losses, used to adjust kWh and kW savings at the customer meter to the generation level, include only the T&D line losses for the EKPC system.

Request 54b. If the answer to part a. of this request is negative, identify all sources of the line losses used by GDS to adjust kWh and kW savings at the customer meter to the generation level of the electric grid.

Response 54b. Not applicable.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 55
RESPONSIBLE PERSON: Scott Drake
COMPANY: East Kentucky Power Cooperative, Inc.

Request 55. Refer to page 35 of the Potential Study where it states, "In order to approximate EKPC's structure for providing transfer payments to its member utilities to cover both incentives and lost revenue, GDS used an 'incentive' level of 48% of measure costs in the benefit-cost model and used an administrative cost of 25% of incentives."

Request 55a. Explain how EKPC determined the incentive level of 48 percent and administrative costs of 25 percent.

Response 55a. GDS established the incentive level of 48% of the measure costs and administrative costs of 25% of the incentives in order to perform its cost-benefit analysis of individual measures in the potential study. EKPC provided data to GDS from previous cost-benefit analyses in order to provide a check on these parameters.

Request 55b. Provide EKPC's current incentive level as a percentage of measure costs and its current percentage of administrative costs to incentives.

Response 55b. EKPC does not track these measure-level parameters for its programs in the field. EKPC did not use GDS's estimates of incentives or administrative costs in this IRP. EKPC prepared separate incentive and administrative costs estimates for each program it analyzed in DSMore for this IRP based on the characteristics of each program.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 56
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 56. Refer to Table 6-1, Measures and Programs Included in the Residential Sector Analysis, on pages 38-41 of the Potential Study. Identify (1) current measures EKPC is considering keeping, (2) those being considered for termination, and (3) new measures it is considering implementing.

Response 56. With reference to Table 6-1, here are the measures -

(1) Current measures that EKPC is considering keeping:

- ENERGY STAR® Refrigerators
- ENERGY STAR® Freezers
- Second Refrigerator Turn In
- Second Freezer Turn In
- Standard CFL
- Standard LED
- Heat Pump Water Heater
- ENERGY STAR® Dishwashers
- ENERGY STAR® Clothes Washers
- Insulation – Ceiling

- Insulation – Floor
- Air Sealing
- Duct Sealing
- ENERGY STAR® Windows – New Construction only
- Complete Weatherization Package – Mobile Homes with Electric Heat
- High Efficiency Central AC
- Ductless mini-split AC
- High Efficiency Heat Pump
- Heat Pump replacing Electric Furnace
- Dual Fuel Heat Pump
- Ductless mini-split Heat Pump
- New Construction Homes
- Early Retirement Heat Pump replacing electric furnace

(2) Measures being considered for termination:

- ENERGY STAR® Windows – Retrofit
- Ground Source Heat Pump

(3) New measures EKPC is considering implementing:

- Efficient Televisions
- ENERGY STAR® Desktop Computer
- Efficient Set Top Box
- Specialty CFLs and LEDs
- ENERGY STAR® Torchiere
- Exterior CFL and LED Fixtures
- Low Flow Showerhead
- Water Heater Pipe Wrap
- Shell measures for Homes with electric AC and fossil heat

- HVAC Tune-Up
- Smart Thermostat
- Pre-Paid Energy Display Monitor
- Home Energy Reports

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 57
RESPONSIBLE PERSON: Scott Drake
COMPANY: East Kentucky Power Cooperative, Inc.

Request 57. Refer to pages 44-49 of the Potential Study. Explain which of the tables prepared by GDS best describes EKPC's plan of residential potential to achieve the equivalent of 1 percent of its annual retail sales.

Response 57. Table 6-18 titled "Residential 1% Constrained Achievable Savings Potential Energy Savings, by End Use" best describes EKPC's plan of residential potential to achieve the equivalent of 1% of its annual retail sales.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 58
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 58. Refer to Table 6-22, pages 53-62, of the Potential Study. Explain whether for the residential sector EKPC will most likely consider the Achievable Electricity (kWh) Savings By 2024 or the Achievable Electricity (kWh) Savings By 2024 ($1,000,000 Constrained) and what the required spending level will be to do so.

Response 58. EKPC has used neither the achievable savings nor the $1,000,000 constrained savings as the basis for its residential class savings goals. Rather, EKPC is using the 1% of retail savings annual goal with a six-year ramp up from current levels of savings to the 1% goal.

While spending levels will vary year to year, EKPC estimates that its residential energy efficiency budget (for its administrative costs plus transfer payments to member cooperatives) will reach approximately $27 million per year by the 2020 program year.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 59
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 59. Refer to Table 7-1, Types of Electric Energy Efficiency Measures Included in the Commercial Sector Analysis on pages 66-68, of the Potential Study. Identify (1) current measures EKPC is considering keeping, (2) those being considered for termination, and (3) new measures it is considering implementing.

Response 59. With reference to Table 7-1, here are the measures -

(1) Current measures that EKPC is considering keeping:

- Compact Fluorescent
- LED Exit Sign
- High Performance T8
- High bay T8 (vs Metal Halide)
- High performance T5 (replacing T8)
- CFL Hard Wired and High Wattage
- Low Bay/High Bay/Outdoor LED (vs Metal Halide)
- Outdoor Induction lighting
- Compressed Air – Fix Air Leaks

(2) Measures being considered for termination:

- None

(3) New measures EKPC is considering implementing:

- Lighting Occupancy Sensors
- Space Cooling Split AC
- Space Cooling DX Packaged System (CEE Tier 2)
- Air Cooled Chiller
- Space Cooling PTAC
- Ventilation Variable Frequency Drives
- Non-ventilation Variable Frequency Drives
- Water Heating measures (High Efficiency Storage, Pre-rinse Sprayer, On Demand, Tank Insulation, Heat Pump Water Heater)
- ENERGY STAR® Glass Door Freezer, Refrigerator
- ENERGY STAR® Solid Door Freezer, Refrigerator
- Anti-sweat heater controls on freezers
- Vending Miser
- Humidity Door Heater Controls for freezers and coolers
- Refrigerated Case Covers
- Zero Energy Doors for freezers and coolers
- ENERGY STAR® Ice Machine
- LED Case Lighting

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REQUEST 60
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 60. Refer to Table 7-10, pages 75-77, of the Potential Study. Explain whether for the commercial sector EKPC will most likely consider the Economic Potential (kWh) or the Achievable Electricity (kWh) Savings By 2024 and what the required spending level will be to do so.

Response 60. For the commercial sector, EKPC is using the Achievable Energy savings for its savings targets after a six-year ramp up period.

EKPC plans its DSM programs for the commercial and industrial sector combined.

While spending levels will vary from year to year, EKPC estimates that its commercial/industrial energy efficiency budget (for its administrative costs plus transfer payments to member cooperatives) will reach approximately $13.9 million per year by the 2020 program year.

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REQUEST 61
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 61. Explain whether EKPC has discussed any of the proposed new DSM programs with any commercial class customers.

Response 61. No formal discussions have occurred with the commercial class members pertaining to potential new DSM programs. The DSM Steering Committee will be reviewing those programs in detail. During program development, discussions with commercial customers are likely. EKPC actively communicates with other utilities about DSM Programs to educate itself on program level "lessons learned."

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 62
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 62. Refer to Table 8-1, Types of Electric Measures Included in the Industrial Sector Analysis, on pages 79-83 of the Potential Study. Identify (1) current measures EKPC is considering keeping, (2) those being considered for termination, and (3) new measures it is considering implementing.

Response 62. With reference to Table 8-1, here are the measures -

(1) Current measures that EKPC is considering keeping:

- CFL (screw-in, fixture, flood)
- LED (exit sign, pin lamp, screw in, replace halogen, wallpack)
- HID Fixture upgrade
- High intensity Fluorescent Fixture
- Induction Fluorescent
- CFL Exterior Lighting
- Lamp & Ballast Retrofit
- Compressed Air –Advanced Compressor Controls

- Compressed Air System Management

(2) Measures being considered for termination:

- None

(3) New measures EKPC is considering implementing:

- Low flow Faucet Aerator
- Heat Pump Water Heater
- Tank Insulation (electric)
- High Efficiency Electric Water Heater
- Electronically-Commutated Permanent Magnet Motors
- Demand-Controlled Ventilation
- High Performance Air Filters
- Variable Speed Drive Control
- EMS Optimization
- EMS Install
- Efficient Chilled Water Pump
- Chilled Hot Water Reset
- Programmable Thermostats
- Water Cooled Screw Chiller
- Water Cooled Centrifugal Chiller
- Air-Cooled Recip and Screw Chiller
- High efficiency Pumps
- Water Loop Heat Pump
- Central Lighting Control
- Daylight Dimming
- Stairwell Bi-Level Control

- Remote-Mounted Occupancy Sensor
- Switching Controls for Multilevel Lighting
- Controls for H.I.F.
- LED Specialty
- LED Outdoor Area Fixture
- VFD Pump
- ECM Motors on furnaces
- Electric Supply System Improvements
- Sensors and Controls (Process Heating and Cooling, Machine Drive)
- Energy Information System
- Improved Refrigeration
- Advanced Lubricants
- Pump System Efficiency Improvements
- Motor System Optimization
- Fan System Improvements
- Advanced Efficient Motors
- Industrial Motor Management

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REQUEST 63
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 63. Refer to Table 8-10, pages 91-94, of the Potential Study. Explain whether for the industrial sector EKPC will most likely consider the Economic Potential (kWh) or the Achievable Electricity (kWh) Savings By 2024 and what the required spending level will be to do so.

Response 63. For the industrial sector, EKPC is using the Achievable Energy savings for its savings targets after a six-year ramp up period. EKPC plans its DSM programs for the commercial and industrial sector combined. While spending levels will vary year to year, EKPC estimates that its commercial/industrial energy efficiency budget (for its administrative costs plus transfer payments to member cooperatives) will reach approximately $13.9 million per year by the 2020 program year.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 64
RESPONSIBLE PERSON: Scott Drake
COMPANY: East Kentucky Power Cooperative, Inc.

Request 64. Explain whether EKPC has discussed any of the proposed new DSM programs with any industrial class customers.

Response 64. No formal discussions have occurred with the industrial class members pertaining to potential new DSM programs. The DSM Steering Committee will be reviewing those programs in detail. During detailed program development, discussions with industrial customers are likely. EKPC actively communicates with other utilities about DSM Programs to educate itself on program level "lessons learned."

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 65
RESPONSIBLE PERSON: **Scott Drake**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 65. Improvements in technology allow electric service to be provided more economically, efficiently, and reliably, with better environmental performance than in the past. Explain how EKPC has factored future technology improvements into its long term plan for meeting customer needs.

Response 65. EKPC has factored future technology improvements into its long-term plan for meeting customer needs in the area of DSM in three ways. The first way is by adopting specific recent technology improvements into its DSM plan. Examples include heat pump water heaters, ductless mini-split heat pumps, and smart thermostats. The second way is to project comparable levels of new savings beyond the 10-year horizon of our technology potential study. While some of these new savings will be achieved by increasing the penetration of known technology improvements, a major component of these new savings is expected to be met by future technology improvements. Finally, future technology improvements will foster the convergence of energy efficiency, conservation, demand response, rate design, and distributed energy

resources. EKPC and its Member cooperatives are going to work to harness the future benefits of this convergence for our customers. One way we will do that is by adopting new technologies as they become proven and integrating them into our technology platforms. We anticipate that energy information technology and smart thermostat technology are two categories where innovation will provide these integration benefits.

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COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 66
RESPONSIBLE PERSON: **Jerry Purvis**
COMPANY: **East Kentucky Power Cooperative, Inc.**

Request 66. Global warming is an issue raising concerns about the effects of energy production in the creation of greenhouse gases. Explain how EKPC is addressing the issues concerning greenhouse gas.

Response 66. EKPC is a proactive environmental steward with a history of addressing issues concerning the environment including greenhouse gases, having spent over $1.6 billion in the last 10 years cleaning up and constructing new state of the art facilities. EKPC was one of the first companies to respond to methane's impact to the atmosphere. Methane is 20 times more problematic than carbon dioxide as a greenhouse gas. EKPC invested in landfill gas to energy projects LFGTE in the late 1990s and early 2000s and is still seeking out additional opportunities to increase its LFGTE portfolio. EKPC is currently operating five (5) LFGTE projects and one more LFGTE project is underway in Glasgow, Kentucky. LFGTE projects combust methane to generate electricity, reducing the methane that municipal solid waste landfills would otherwise release into the atmosphere.

Moreover, in 2011, EKPC's Board of Directors and Board Officers developed and published a strategic plan that called for EKPC to diversify its generating asset base and includes a strategic objective to understand and research ways to reduce climate impacts due to GHG emissions. Since that time, EKPC has moved from 92% coal-fired energy to 74% coal-fired energy by preparing to retire William C. Dale Station pursuant to EPA's Mercury and Air Toxics rule and issuing this Integrated Resource Plan seeking more opportunities for diversification.

EKPC increased its access to natural gas assets in the bulk electric markets by integrating with PJM in June 2013. J.K. Smith Station dispatches economically right behind H.L. Spurlock Station, burning increasing amounts of natural gas to produce electricity for our customers. The PJM Market has opened the doors to more efficiency and a better economy, which includes the increased use of burning natural gas within its footprint. To increase its natural gas generation assets, EKPC is seeking approval to acquire three natural gas combustion turbines at the Bluegrass Generation Station in LaGrange, Kentucky.

EKPC has reduced its carbon dioxide footprint by 2.9 million tons since 2010, recognizing the concerns about greenhouse gas emissions before EPA proposed its Clean Power Plan. Participating in the PJM Market has reduced the operation of EKPC's coal-fired baseload assets at William C. Dale and John Sherman Cooper Stations. Cleaner and

more efficient use of H.L. Spurlock and J.K. Smith along with PJM Markets have helped EKPC begin to achieve the Board of Directors' strategic plan of increasing the diversity of its generation assets.

Today our company, and the industry, is in the early stages of understanding and preparing for compliance with the Clean Power Plan and other EPA regulations including the Coal Combustion Residuals rule and the forthcoming Effluent Limitation Guidelines. On August 3, 2015 the final Clean Power Plan rule was released and contained dramatic changes to the proposed rule. The final rule seeks to decrease nationwide carbon dioxide emissions by 32% below 2005 levels.

State goals were re-calculated using the EPA's newly created National Uniform Carbon standards of 1,305 lbs. CO2 per MWh for steam generating units or IGCC units (coal units) and 771 lbs. CO2 per MWh for stationary combustion turbines (natural gas units). These standards were not included in the proposed rule for industry comment. Kentucky's 2030 target emissions rate under the previously proposed rule of 1,763 lbs. CO2 / nMWh was decreased to 1,286 lbs. CO2 / nMWH, a dramatic, costly and unforeseen decrease for Kentucky, a state with very limited options for utility-scale renewable energy development to offset fossil fuel sources including natural gas. This final goal would be a 40% reduction by 2030 from 2012 statewide average emissions rate for CO2 and a 27% reduction from the proposed rule. In fact, under a phased in approach

beginning in 2022, the Step 1 Interim Goal for Kentucky is 1,643 lbs. CO2 which is well below the original rule's 2030 final goal of 1,763 CO2 / nMWH.

While EKPC and its environmental engineers and legal teams are quickly studying the details contained in the rule's over 1,560 pages, it is clear that its impact will result in dramatic changes to our power costs to serve our members, a departure from least-cost resource planning established under Kentucky statue and the PSC's direction, rapid development of new utility scale renewable energy resources, and the rapid build out of new natural gas facilities to back up intermittent resources such as wind and solar and necessary to replace existing coal resources due to premature retirement.

The timing of the rule has changed as well with one exception; the State Implementation Plan is due September 6, 2016. However, virtually all other deadlines have been pushed back. Should states need more time, states can request and possibly receive a 2-year extension to September 2018 but must provide with its request a draft State Implementation Plan acceptable to the EPA. EPA also introduced new interim goals with a phased approach, but with rate goals lowered well below the original proposed rule's final 2030 goal for Kentucky. In fact, the new rule's goal is 40% below the state average emissions levels for CO2 in 2012 and 27% below the proposed rules final goal.

EPA's final rule allows states to develop their State Implementation Plans either as a rate-based plan or a mass-based plan and facilitates the implementation of a carbon cap and trading program to comply. States that do not submit a plan will receive a federally imposed plan ("FIP"). EPA provided final guidance on the FIP in 755 pages to review and understand should states elect not to submit an approvable SIP. EKPC works diligently with our state Energy and Environmental Cabinet, Kentucky Division of Air Quality, the Public Service Commission, Utility Information Exchange Kentucky ("UIEK"), National Rural Electric Cooperatives Association ("NRECA"), in-house and outside legal counsel and environmental consultants, to stay abreast of changing environmental regulations and Court decisions in order to respond to concerns about the changing climate for our Industry.

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FIRST INFORMATION REQUEST RESPONSE

COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 07/23/15
REQUEST 67
RESPONSIBLE PERSON: Julia J. Tucker
COMPANY: East Kentucky Power Cooperative, Inc.

Request 67. Refer to Table 3-1 on page 37 of the IRP. Provide a schedule showing how the actual summer and winter peak demands compare to the most recent forecasts made prior to the period of the peak demands.

Response 67. Please see the following tables.

Season	Actual Winter Peak Demand (MW)	Weather-Normalized Winter Peak Demand (MW)	Forecast Winter Peak Demand (MW)
2002-2003	2,568	2,696	2,430
2003-2004	2,610	2,562	2,528
2004-2005	2,719	2,863	2,633
2005-2006	2,599	2,624	2,732
2006-2007	2,840	2,984	2,773
2007-2008	3,051	3,163	2,848
2008-2009	3,152	3,128	2,962
2009-2010	2,868	3,012	3,029
2010-2011	2,891	3,111	3,006
2011-2012	2,481	2,672	3,033
2012-2013	2,597	2,661	2,947
2013-2014	3,425	2,995	2,980

Season	Actual Summer Peak Demand (MW)	Weather-Normalized Summer Peak Demand (MW)	Forecast Summer Peak Demand (MW)
2003	1,996	2,134	2,053
2004	2,052	2,179	2,036
2005	2,220	2,198	2,133
2006	2,332	2,333	2,151
2007	2,481	2,423	2,213
2008	2,243	2,172	2,302
2009	2,195	2,281	2,363
2010	2,443	2,353	2,406
2011	2,388	2,313	2,238
2012	2,354	2,196	2,277
2013	2,199	2,211	2,306
2014	2,192	2,300	2,302