


VERIFICATION

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, Bruce L. Sailors, Manager Rates & Regulatory Strategy, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests and that the answers contained therein are true and correct to the best of his knowledge, information and belief.



Bruce L. Sailors, Affiant

Subscribed and sworn to before me by Bruce L. Sailors, on this 8th day of December, 2021.



NOTARY PUBLIC

My Commission Expires:



ROCCO O. D'ASCENZO
ATTORNEY AT LAW
Notary Public, State of Ohio
My Commission Has No Expiration
Section 147.03 R.C.

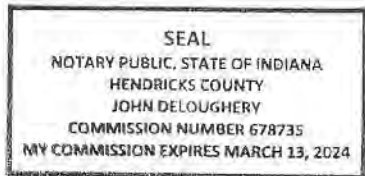
VERIFICATION

STATE OF INDIANA)
) SS:
COUNTY OF HENDRICKS)

The undersigned, Heather Evans, Sr. Products & Services Manager, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.

Heather Evans
Heather Evans, Affiant

Subscribed and sworn to before me by Heather Evans on this 7 day of December, 2021.



[Signature]
NOTARY PUBLIC

My Commission Expires: 3/13/24

VERIFICATION

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, Heather Klein, Products and Services Manager, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.

Heather Klein
Heather Klein, Affiant

Subscribed and sworn to before me by Heather Klein on this 9th day of December, 2021.

E. Minna Rolfes-Adkins
NOTARY PUBLIC

My Commission Expires: July 8, 2022



E. MINNA ROLFES-ADKINS
Notary Public, State of Ohio
My Commission Expires
July 8, 2022

VERIFICATION

STATE OF NORTH CAROLINA)
) SS:
COUNTY OF ~~WAKE~~)
) *Alamance*

The undersigned, Jean P. Williams, Manager DSM Analytics, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.

Jean P. Williams

Jean P. Williams, Affiant

Subscribed and sworn to before me by Jean P. Williams on this 13 day of December, 2021.



Vaughn Notchey

NOTARY PUBLIC

My Commission Expires: Sep 20, 2026

VERIFICATION


STATE OF NORTH CAROLINA)
) SS:
COUNTY OF)

The undersigned, Jeremy Morrison, Sr. Products & Services Manager, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.


Jeremy Morrison Affiant

Subscribed and sworn to before me by Jeremy Morrison on this 12th day of Dec, 2021.




NOTARY PUBLIC

My Commission Expires: 5-2-2023

VERIFICATION

STATE OF INDIANA

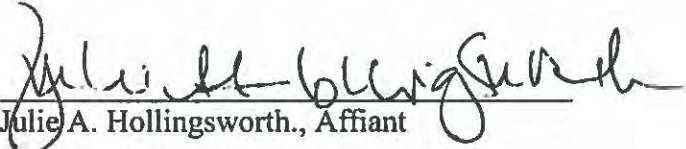
)

SS:

COUNTY OF HENDRICKS

)

The undersigned, Julie A. Hollingsworth, Sr. Program Perform Analyst, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.


Julie A. Hollingsworth., Affiant

Subscribed and sworn to before me by Julie A. Hollingsworth. on this 8 day of December, 2021.


NOTARY PUBLIC

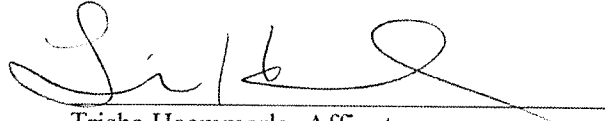
My Commission Expires: 10/2025



VERIFICATION

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, Trisha Haemmerle, Senior Strategy & Collaboration Manager, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.


Trisha Haemmerle, Affiant

Subscribed and sworn to before me by Trisha Haemmerle on this 9th day of December, 2021.


NOTARY PUBLIC

My Commission Expires: July 8, 2022



E. MINNA ROLFES-ADKINS
Notary Public, State of Ohio
My Commission Expires
July 8, 2022

KyPSC Case No. 2021-00424
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**Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021**

STAFF-DR-01-001

REQUEST:

Refer to the Application, paragraph 3.

- a. Provide all comments submitted by the Collaborative to Duke Kentucky regarding the instant Application.
- b. Provide the slides and agenda from the October 20, 2021 Collaborative meeting.

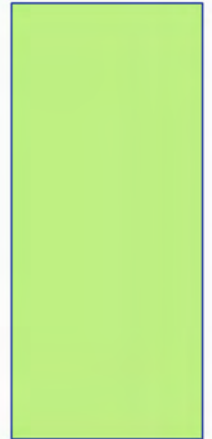
RESPONSE:

- a. There were no comments received by Collaborative members regarding the instant Application.
- b. Please see STAFF-DR-01-001(b) Attachments 1 and 2.

PERSON RESPONSIBLE: Trisha Haemmerle

DUKE ENERGY KENTUCKY 2021 COLLABORATIVE MEETING

OCTOBER 20, 2021



MEETING AGENDA

3:00 – 3:05	Arrive and Introductions	All
3:05 – 3:25	Program Updates	Trish Haemmerle
3:25 – 4:00	EM&V Review	Julie Smith & Jean Williams
4:00 – 4:25	Review 2020 Fiscal Year	Trish Haemmerle
4:25 – 4:30	Roundtable	All
4:30	Adjourn	

REGULATORY UPDATE

- On August 16, 2021, Duke Energy Kentucky filed the annual amendment filing requesting:
 - To expand the scope of the Multifamily portion of the Residential Smart Saver[®].
 - Add additional measures to Low Income Neighborhood program.
 - Duke Energy Kentucky is seeking approval to discontinue its Limited Summer option of the PowerShare[®] program effective May 31, 2022.
 - Consolidating the Smart Saver[®] Prescriptive and Smart Saver[®] Custom program to Non-Residential Smart Saver[®]
 - Submitted a revised EM&V plan for the Peak Time Rebate Pilot

NON-RESIDENTIAL PROGRAMS

SMART \$AVER[®] PRESCRIPTIVE

Provides incentives to commercial and industrial consumers for installation of high efficiency equipment in applications involving new construction, retrofit, and replacement of failed equipment.

Marketing Strategy

- ▶ Program promotes incentives for the following technologies: lighting, HVAC, motors, pumps, variable frequency drives, food services, IT, and process equipment
- ▶ Leverage trade ally network
- ▶ Large customer communication through Account Managers

Program Highlights

- ▶ Program ended the year at 109% of the kWh savings goal.
- ▶ Eighty-five percent of applications were submitted online
- ▶ The reservation system is still in place for customer wanting to file a pre-application
- ▶ Filed in August 2020 to request unspent budget but the request was denied. This resulted in the program being fully subscribed.

SMART \$AVER[®] CUSTOM

The purpose of this program is to encourage the installation of high efficiency equipment in new and existing nonresidential establishments.

Marketing Strategy

- ▶ Custom uses the same marketing approach as Smart \$aver prescriptive

Program Results to Date

- ▶ 1 customer participated in the program.
- ▶ The program paid incentives totaling \$579.
- ▶ A total of 5 applications were received resulting \$232,000 in new incentive offers.

Highlights / Issues

- ▶ Similar to Smart \$aver Prescriptive, a reservation system is set up for Custom projects
- ▶ All available 2021-2022 incentive dollars are reserved due to continued high levels of participation.
- ▶ Moving forward, the Smart \$aver[®] Prescriptive and Smart \$aver[®] Custom program will be consolidated and marketed as Non-Residential Smart \$aver[®]

SMALL BUSINESS ENERGY SAVER

The purpose of this program is to reduce energy usage through the direct installation of energy efficiency measures within qualifying small non-residential customer facilities.

Marketing Strategy

- ▶ Marketing efforts have focused on the Company's Account Management team meeting with customers
- ▶ Account Managers distribute collateral that explains the details of the program

Program Results to Date

- ▶ 55 customers participated in the program.
- ▶ The program resulted in savings of over 2,424,000 kWh
- ▶ The program was put on hold for part of 2020 due to COVID-19 but was operating at full capacity at the end of 2020 and all of 2021.

Program Specifics

- ▶ The program is designed as a pay-for-performance offering meaning that the vendor is only compensated for energy savings produced through the installation of energy efficiency measures.
- ▶ The Company is focused on increasing refrigeration and HVAC measure adoption

POWERSHARE®

Duke Energy Kentucky's Peak Load Management Program

Marketing Strategy

- ▶ Marketing efforts have focused on the Company's Account Management team meeting with customers
- ▶ Account Managers distribute collateral that explains the details of the program

Program Results to Date

- ▶ 17 customers participated in the program.
- ▶ During the June 2020 through September 2021 period, there were zero economic events or emergency events.

Program Specifics

- ▶ There are two product options offered for PowerShare® - CallOption® and QuoteOption®:
 - ▶ CallOption – customer sells Duke Energy an option to curtail their load
 - ▶ QuoteOption – voluntary program where customers are offered a price to reduce load and they decide whether or not to participate and how much load to nominate.
- ▶ A customer must be able to provide a minimum of 100 kW load response to qualify for either option
- ▶ The program has requested not to offer Limited Summer starting in the summer 2022

RESIDENTIAL PROGRAMS

RESIDENTIAL ENERGY ASSESSMENTS

A free on-site energy audit designed to help residential customers realize cost savings on their monthly energy bills through a more energy efficient home.

Marketing Strategy

- ▶ Primarily focused on direct mail campaigns
- ▶ Web based promotions

Program Results to Date

- ▶ 539 audits were completed
- ▶ Over 1,300 additional LEDs were installed during the audit visits
- ▶ The program was paused on January 1, 2021, and restarted March 30
- ▶ Any existing scheduled appointments were cancelled and attempted to be rescheduled to a future date.

Example Recommendations

- ▶ The Program was also approved to begin offering additional measures that included an additional assessment kit with an assessment with blower door, handheld low-flow showerheads, smart thermostats, specialty globes and candelabras, and recessed LED bulbs.

LOW INCOME SERVICES

Includes Weatherization, Refrigerator Replacement and Payment Plus

Weatherization

- ▶ The programs utilize low-income agencies and leverage the existing state weatherization programs to increase the cost effectiveness of the programs.
- ▶ The programs are designed to assist income-qualified customers in reducing energy consumption and lowering energy cost.

Refrigerator Replacement

- ▶ To assist low-income customers with replacement of an energy inefficient refrigerator, the Refrigerator Replacement program provides an opportunity for eligible low-income customers to receive an energy efficient refrigerator.

Payment Plus

- ▶ This programs provides low-income customers with credits towards bill arrearage in exchange for attending educational courses on energy efficiency and budgeting. Additional credits can be earned if the customer participates in the Weatherization program after completing the courses.

LOW INCOME NEIGHBORHOOD

Takes a non-traditional approach to serving income-qualified areas of the Duke Energy Kentucky service territory.

Marketing Strategy

- ▶ The Company targets neighborhoods with a significant low-income customer base using a grassroots marketing approach to interact on an individual customer basis and gain trust

Program Results to Date

- ▶ The Company has been working with local business leaders and agencies to promote the program.
- ▶ 0 homes have participated due to COVID-19.
- ▶ Proper safety protocols shall be adhered to, to ensure everyone's safety always.

Highlights /Issues

- ▶ Duke has partnered with the Northern Kentucky Community Action Commission, the Kentucky Housing Authority and other local businesses to provide information to residences and to promote the program.
- ▶ We requested to revise the available measures to include insulation, air sealing, duct sealing, and smart thermostats to address customers high energy use. Eligibility of the revised measures (NES 2.0) will be made available to customers that the Company deems a high-energy user.

POWER MANAGER®

Residential Load Control Program.

Marketing Strategy

- ▶ Targeting customers through outbound calling
- ▶ Email targeting
- ▶ Program information is also available through the Duke Energy website

Highlights/Issues

- ▶ There were zero events between July 2020 – June 2021.
- ▶ There was one test event

Program Specifics

- ▶ 1 kW reduction
 - ▶ \$25 incentive at installation
 - ▶ \$2.40 monthly credit
- ▶ 1.5 kW reduction
 - ▶ \$35 incentive at installation
 - ▶ \$3.60 monthly credit
- ▶ The program is from May - September

RESIDENTIAL SMART \$AVER[®]

Offers customers a variety of energy conservation measures designed to increase energy efficiency in their homes.

Lighting

- ▶ The program is designed to increase the energy efficiency of residential customers by offering customers energy efficient lighting options to install in high-use fixtures within their homes.
- ▶ The efficient lighting offer is available through an on-demand ordering platform, enabling customers to request LEDs and have them shipped directly to their homes.

Save Water and Energy

- ▶ Offers customers low flow water devices and insulating pipe tape to install within their homes.
- ▶ Must have an electric powered water heater to participate
- ▶ Two kit sizes are available
- ▶ Over 1,300 kits were distributed

Multi-Family

- ▶ The Multi-Family EE Program is an extension of the Residential Smart Saver[®] lighting program and allows Duke Energy Kentucky to utilize an alternative delivery channel which targets multi-family apartment complexes.
- ▶ Targets property managers that have properties with 4 or more units.
- ▶ Once a property installs lighting measures, they are eligible for the water measures if the property has electric water heating.

RESIDENTIAL SMART \$AVER[®]

Offers customers a variety of energy conservation measures designed to increase energy efficiency in their homes.

HVAC

- ▶ The HVAC portion of the program utilizes a network of contractors to encourage the installation of high efficiency equipment and the implementation of energy efficient home improvements. Equipment and services to be incentivized include:
 - ▶ Installation of high efficiency air conditioning (AC) and heat pump (HP) systems
 - ▶ Performance of AC and HP tune-up maintenance services
 - ▶ Implementation of attic insulation and air sealing services
 - ▶ Implementation of duct sealing services

Additional Measures

- ▶ In August 2019 the following measures were filed for approval and approved in April 2020:
 - ▶ Energy Star smart Wi-Fi thermostats
 - ▶ Water conservation products
 - ▶ Energy Star Air Purifiers
 - ▶ Energy Star Dehumidifiers
 - ▶ LED lighting fixtures – portable, direct wire & outdoor photocell lights

MY HOME ENERGY REPORT

Compares household electric usage to similar, neighboring homes, and provides recommendations to lower energy consumption.

Marketing Strategy

- ▶ The report is marketed as My Home Energy Report or MyHER

Updates

- ▶ Tendril is the third-party vendor.
- ▶ The program is now opt-in beginning in June 2019
- ▶ Customer receive 2 mailed reports and 12 online reports if an email is provided.
- ▶ Over 6,547 are receiving the report
- ▶ Only 10 customers have opted out after receiving the report.

Highlights / Issues

- ▶ The Company has designed an interactive portal .
- ▶ Over 4,219 KY customers are using the online portal.
- ▶ A mobile app was also introduced in 2020.
- ▶ Customers signed up to receive the report can also view their information through the mobile app.

PEAK TIME REBATE PILOT

The PTR pilot program offers participating customers the opportunity to lower their electric bill by reducing their electric usage during Company-designated peak load periods known as Critical Peak Events ("CPE").

Marketing Strategy

- ▶ The Company reached out to over 55,000 customers to reach an appropriate sample for the pilot
- ▶ This resulted in 899 participants for the pilot.
- ▶ There are 759 current participants as of October 11, 2021.

Updates

- ▶ Customers are satisfied with the pilot.
- ▶ \$13,824 incentives to date.
- ▶ Nexant is preparing EM&V report.

Highlights

- ▶ Twelve Critical Peak Events in Year 1
- ▶ Year 2 starts with a hot August and 8 events
- ▶ Company will propose Summer 2022 incentive research in November DSM filing
 - ▶ 2 new groups
 - ▶ 1 group \$1.20 & 1 group \$0.60
 - ▶ All other pilot aspects the same

2020 FISCAL UPDATE

- Duke Energy Kentucky will file the July 2020 – June 2021 status update on November 15th.
- The filing will also include the forecast for July 2022 – June 2023.
- We are requesting to continue to offer our current portfolio of programs including new measures; upon approval, included in the amendment filing submitted in August.

2020 FISCAL UPDATE

	Current Rate*	Proposed Rate	
Residential Electric	\$ 0.002175	\$ 0.006975	per kilowatt-hour
Residential Gas	\$ 0.045817	\$ 0.014803	per ccf
Non-Residential Distribution Service	(\$0.000868)	\$ (0.000718)	per kilowatt-hour
Non-Residential Transmission Service	\$ 0.000218	\$ 0.000066	per kilowatt-hour
*Effective May 3, 2021			

DUKE ENERGY KENTUCKY 2021 COLLABORATIVE MEETING

OCTOBER 20, 2021

Reports to be discussed today:

Program	Date of Report	Evaluator
Power Manager	8/31/20	Resource Innovations*
Residential Assessments	8/7/20	Opinion Dynamics
Save Energy & Water Kit	4/6/20	Resource Innovationst
Peak Time Rebate (Participant surveys)	In process	Nexant

* Previously known as Nexant

Power Manager

- A voluntary demand response program that offers incentives to residential customers who allow Duke Energy to reduce the use of their central air conditioner’s outdoor compressor and fan during summer days with high energy usage.
 - Moderate cycling (60%) and high cycling (75%); 61% of customers are in moderate cycling option, remainder are in high cycling; almost 12k total customers in Summer 2019
- Nexant conducted the analysis by utilizing: 1) randomized-control experiments between a small EM&V test (control) groups versus a broader treatment group; 2) PJM test event utilized a within-subjects design methodology.
- Demand reductions are -0.9 kW per household for the average general population event.
- On average, emergency shed produces impacts (-0.98 kW) that are similar to normal shed events.
- The time-temperature matrix predicts -1.06 kW load reduction per household for a 1-hour event beginning at 4:00 PM. Because this value represents the expected impact achievable during a “typical” event at 94°F, Nexant recommends its use as the deemed savings value for 2019.
- The greatest impact was observed during the August 19 emergency shed event, where the average customer shed was -1.21 kW.

Table 1-1: Load Impacts for Individual Events

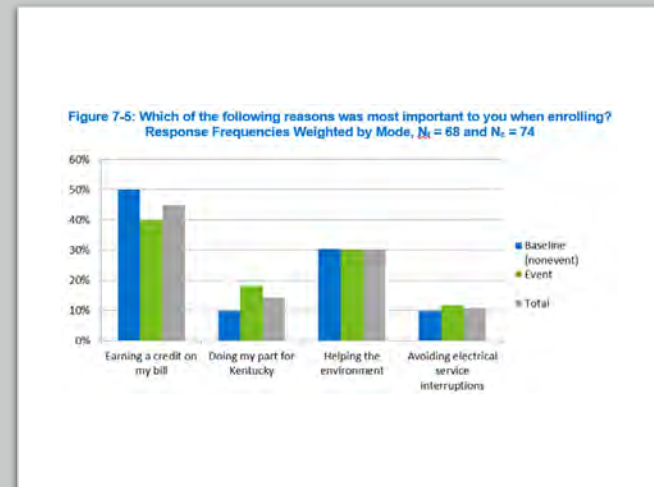
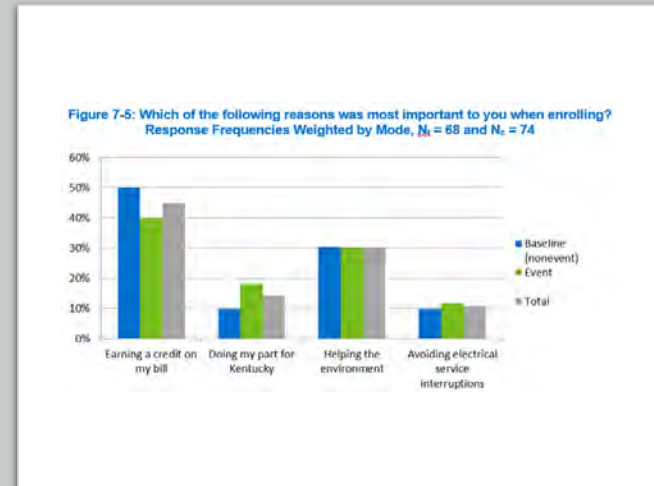
Event Date	Type	Event Period	Reference Load	Impact	90% Confidence		% Impact	95% Confidence		Daily Max
					Lower	Upper		Lower	Upper	
7/19/2019	Emergency	4PM - 5PM	3.28	-0.99	-0.91	-1.08	-30%	-33%	-28%	91°F
	Normal	4PM - 6PM	3.28	-0.61	-0.52	-0.70	-19%	-21%	-16%	91°F
7/19/2019	Emergency	4PM - 5PM	3.36	-0.97	-0.83	-1.10	-29%	-33%	-25%	92°F
	Normal	4PM - 6PM	3.44	-0.85	-0.76	-0.94	-25%	-27%	-22%	92°F
8/19/2019	Emergency	4PM - 5PM	3.73	-1.21	-1.09	-1.34	-33%	-36%	-29%	94°F
	Normal	4PM - 6PM	3.80	-1.17	-1.08	-1.27	-31%	-33%	-28%	94°F
8/20/2019	Normal	12PM - 1PM	2.81	0.42	0.34	0.51	-15%	-16%	-12%	90°F
	Normal	1PM - 2PM	2.88	-0.47	-0.39	-0.55	-16%	-19%	-13%	90°F
9/10/2019	Normal	2PM - 3PM	2.95	-0.23	-0.15	-0.32	-8%	-11%	-5%	90°F
	PJM Test	4PM - 5PM	3.34	-1.09	-0.99	-1.18	-33%	-35%	-30%	95°F
9/12/2019	Emergency	4PM - 5PM	3.31	-0.98	-0.89	-1.05	-29%	-32%	-27%	93°F
	Normal	4PM - 6PM	3.37	-0.83	-0.76	-0.89	-25%	-28%	-23%	93°F
9/30/2019	Emergency	4PM - 5PM	3.09	-0.75	-0.62	-0.87	-24%	-28%	-20%	94°F
	Normal	4PM - 6PM	3.17	-0.71	-0.62	-0.80	-22%	-26%	-19%	94°F
Average General Population Event			3.48	-0.90	-0.85	-0.96	-28%	-34%	-28%	93°F

Table 2-2: Device Count by Control Option

Control Option	# Accounts	# Devices	% of Program
Low	17	17	0.1%
Moderate	7,164	7,417	61.4%
High	4,483	4,636	38.5%
Total	11,664	12,070	100%

Power Manager

- High familiarity (65%) with the program.
- High propensity to recommend (64%); majority of participants would recommend the Power Manager program to others, and 79% are likely to remain enrolled.
- Customers generally are not able to reliably perceive Power Manager curtailment events.
- Most of the suggestions (43%) for improvement from customers spoke to perceived communication gaps from Duke Energy.
- The current approach to communications amongst stakeholders has been effective in building professional collegiality and helps to make the program run smoothly, especially when problems arise.
- The “Assets” module of the Yukon system offers opportunities to increase granularity of load control events. As customer saturation becomes an increasingly pertinent issue, “Assets” may offer a way to address it.



Residential Assessments

- This program provides customers a customized energy report with low/no-cost recommendations along with an energy efficiency kit (and additional LED bulbs); auditor discusses behavioral changes and higher-cost EE investments as needed.
- Impact evaluation, as well as a limited process evaluation focusing on participant satisfaction; evaluation covered participation between 3/1/17 – 4/30/18; 587 households participated.
- DEK REA billing data was irregular; the methodology consisted of determining engineering-derived to billing ratios from two previous DEO REA program evaluations and applying the multiplier to the current DEK engineering impacts; must also deduct additional bulbs.

Table 4-5. Engineering Analysis Gross Impact Results

Measure		March 2017–April 2018			
		Energy Savings (kWh)	Summer Peak Demand (kW)	Winter Peak Demand (kW)	Percent of Total kWh Savings
Residential Assessment Kit	LEDs 9W (2)	56.4	0.0044	0.0039	18%
	Low-Flow Shower Head (1)	56.4	0.0019	0.0038	18%
	Bathroom faucet aerator (1)	6.8	0.0006	0.0011	2%
	Kitchen faucet aerator (1)	41.0	0.0018	0.0036	13%
	Outlet Seals (6)	5.2	0.0005	0.0022	2%
	Weather Stripping (per roll)	37.2	0.0170	0.0084	12%
Total Kit Only		202.9	0.0262	0.0230	65%
Additional LEDs (average of 3.5 bulbs)		107.2	0.0084	0.0074	35%
Total Per-Home Estimate		310.1	0.0346	0.0304	100%

Table 1-4. Derivation of Multiplier Based on DEO Billing Analysis Results Applied to DEK REA Engineering Impacts

Evaluation Period	Engineering-based Annual Energy Savings (kWh)	Billing Analysis Annual Energy Savings (kWh)	Billing Analysis to Engineering Analysis Savings Ratio Multiplier
8/2013 - 12/2014	286	975	3.40
5/2016 - 4/2017	286	1,059	3.70
Average			3.55

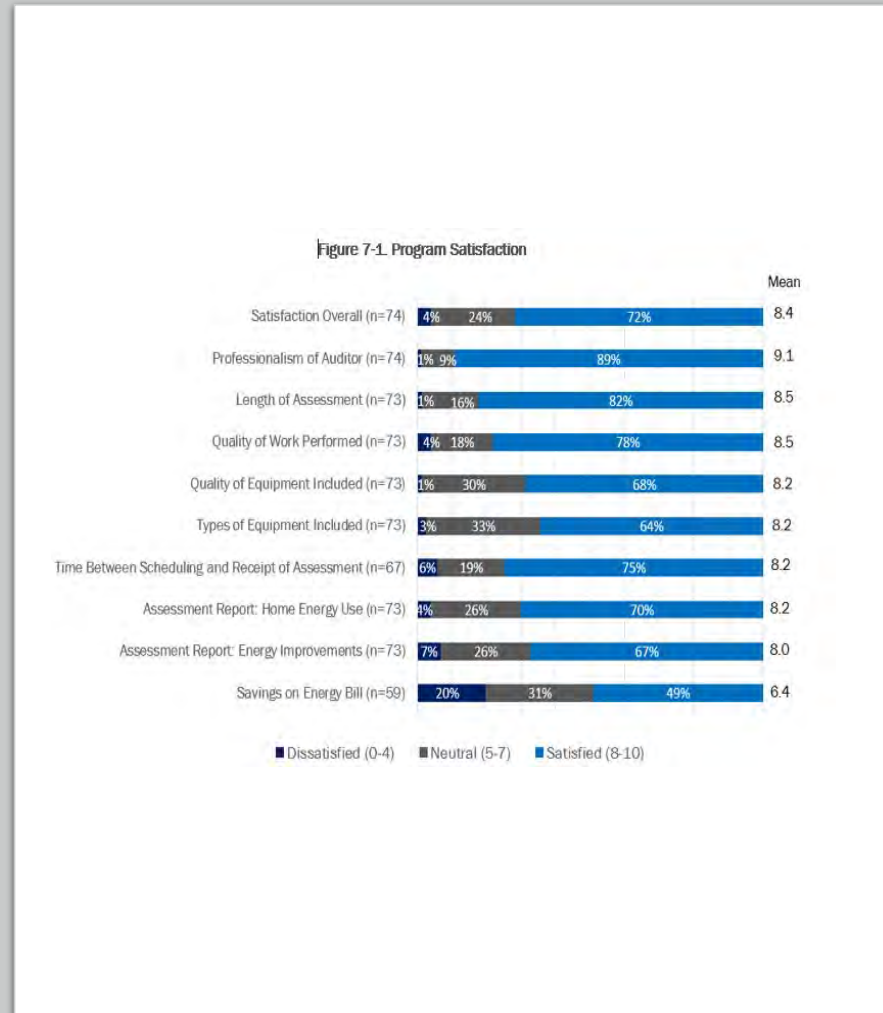
Note: The DEO REA billing analysis results are taken from the following two DEO REA evaluations: *Duke Energy Ohio. Residential Energy Assessments Program Evaluation Report and Appendices - Final. October 16, 2018* and *Duke Energy Ohio. Residential Energy Assessments Program - 2014 Program Evaluation Report. November 30, 2015.*

Table 4-7. Net Impact Savings Using Multiplier of DEO REA Billing and Engineering Analysis Savings

Net Participant Savings			Net Program Savings		
Energy (kWh)	Summer Peak Demand (kW)	Winter Peak Demand (kW)	Energy (MWh)	Summer Peak Demand (MW)	Winter Peak Demand (MW)
1,100.9	0.1228	0.1080	646.2	0.0721	0.0634

Residential Assessments

- Participants were highly satisfied with the program, averaging a score of 8.4 out of 10. The program elements that rated most highly include the professionalism of the auditor, length of assessment, and the quality of the auditor's work.
- The process evaluation revealed that not all measures from the EE Starter Kits were installed by auditors. Aside from LEDs, the installation rate of other kit measures varied from between 46% and 65%.
- Recommendation: Continue to encourage auditors to install all measures in distributed energy efficiency kits. If unable to do so, auditors should track the barriers that prevent them from doing so and develop tactics to overcome these barriers. Training instituted in Spring 2017 with implementation staff should address this issue and help auditors improve their IRs and therefore increase program savings.



Save Energy & Water Kit

Program offers residential customers a kit of energy-efficient showerheads, kitchen and bathroom aerators, and insulated water heater pipe wrap.

DEK markets the program solely through a business reply card (BRC) direct mail campaign to pre-screened, eligible customers

- Kits ship directly to customer's home by EFI

Sample period July 1st, 2018 - June 30th 2019; program recorded a total of 1,103 DEK kit recipients

Nexant conducted an engineering analysis using algorithms (TRMs) to estimate measure savings

- Methodology incorporated customer survey responses as inputs for ISR and other parameters and for free ridership and spillover
- NTG = 103%
 - ❖ Free ridership estimated at 11.5%
 - ❖ Spillover estimated at 14.5%

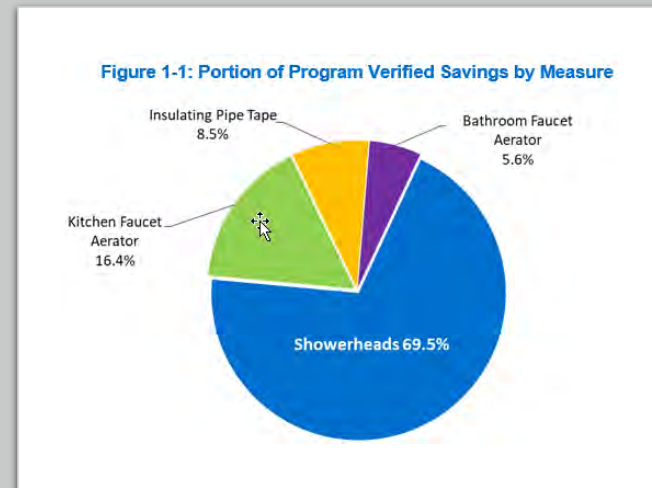


Table 1-4: DEK Verified Impacts by Measure

Measure	Energy Savings per unit (kWh)	Summer Demand Savings per unit (\$/yr)	Winter Demand Savings per unit (\$/yr)	Free Ridership	Spillover	Net to Gross Ratio
Low-flow Showerhead	177.5	0.0149	0.0206			
Low-flow Kitchen Aerator	55.7	0.0039	0.0051			
Low-flow Bathroom Aerator	9.6	0.0015	0.0024	11.5%	14.5%	103.0%
Pipe Wrap*	5.9	0.0007	0.0007			

* Savings for pipe tape is a per linear foot measurement.

Save Energy & Water Kit

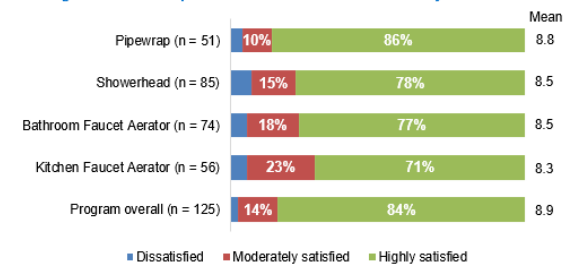
- 174 DEK customers contacted for phone survey
- Highest installation rates for showerheads & pipe wrap; slightly lower rates for bathroom and kitchen aerators
- Over 4 in 10 customers said they purchased and installed additional energy efficiency measures since receiving their kit
- Overall satisfaction is high-84%
 - Lower overall satisfaction with bath and kitchen faucet aerators
- Recommendations include:
 - Continue program – encourages energy savings
 - Continue to monitor showerhead upgrade csat ratings
 - Continue to monitor installation rates in other jurisdictions to see whether this trend is more widespread ; leverage research questions to determine why participants may not have installed any measures

Table 3-4: DEK SEWKP In-Service Rates

Measure	Distributed	Installed	Removed	ISR
Showerhead	233	96	10	37%
Bathroom Faucet Aerator	348	92	8	24%
Kitchen Faucet Aerator	174	56	9	27%
Pipe Wrap*	174	51	0	29%

*Quantity of pipe tape packages

Figure 5-1: Kit Recipient Satisfaction with Measures They Had Installed*



Peak Time Rebate; Participant Surveys

High-level takeaways show similarities between the Winter and Summer post-event survey responses with few differences, including:

- Reported awareness of the program was high in both surveys (Winter 98%, Summer 99%) and while most participants could recall experiencing a winter event day, many could not recall the exact day. More participants could recall specific Summer event days.
- Most participants were aware of the event notification and indicated the company provided pertinent notification information in the customer's preferred channel and at the time they needed.
- Participants who indicated they took action during the peak event had much higher average savings than participants who took no action; most of the actions were to adjust the thermostat or turn off lights.
- While most participants indicated the program was easy to understand, they also indicated that the peak days didn't always coincide with their household schedule.
- Participants were generally satisfied with the program overall (score for Winter 8.0, Summer 8.2 on a 1-10 scale), however overall participants were less satisfied with the amount of the bill credit (Winter 7.0, Summer 6.8, again on a 1-10 scale)
- Only about a quarter of participants offered any recommendations to improve the program, however the most mentioned recommendation to the Winter program was to receive text notifications or to have more notice of events (21 out of 63 participants). For the Summer program, less than one-third of those participants who gave a recommendation said to increase the bill incentive (16 out of 53 participants).

Winter 2020

How much do you agree with the following...	Average Rating (n=131)	Net Promoter Score
Duke Energy notified me through my preferred communication channel	9.7	91
Duke Energy has given me helpful information on how to respond to Peak Days	9.4	82
I'm confident that I know which hours of the day I can earn credits during Peak Days	9.4	87

How much do you agree with...	Average Rating (n=241)	Net Promoter Score
The Peak Time Credit program is easy to understand	9.0	70
I would make additional effort to reduce my usage during Peak Days if the bill credit was greater	8.6	53
Number of Peak Days is reasonable	8.6	48
I would recommend the Peak Time Credit program to friends or family	8.4	46
Peak Days work with my household's schedule	8.0	29

How satisfied are you with...	Average Rating (n=237)	Net Promoter Score
Duke Energy's provided information on how the pilot works	8.8	59
The Peak Time Credit program	8.0	26
The bill credits you have earned through the Peak Time Credit Program	7.0	0

Statement	Detractors (Rating 0-6)	Passives (Rating 7-8)	Promoters (Rating 9-10)
Number of Peak Days is reasonable	\$0.88 (44)	\$1.32 (43)	\$1.72 (154)
The Peak Time Credit program is easy to understand	\$1.00 (22)	\$1.28 (32)	\$1.53 (196)
Peak Days work with my household's schedule	\$0.96 (61)	\$1.36 (60)	\$1.70 (125)
I would recommend the Peak Time Credit program to friends or family	\$0.96 (43)	\$1.25 (45)	\$1.71 (155)
I would make additional effort to reduce my usage during Peak Days if the bill credit was greater	\$1.07 (40)	\$1.52 (31)	\$1.57 (75)

How satisfied are you with?	Detractors (Rating 0-6)	Passives (Rating 7-8)	Promoters (Rating 9-10)
The Peak Time Credit program	\$0.85 (54)	\$1.26 (73)	\$1.87 (120)
Duke Energy's provided information about the pilot	\$1.16 (28)	\$1.33 (44)	\$1.56 (173)
The bill credits you earned through the peak time credit program	\$1.16 (91)	\$1.71 (60)	\$1.72 (87)

Summer 2021

How much do you agree with the following...	Average Rating (n=179)	Net Promoter Score
Duke Energy notified me through my preferred communication channel	9.7	92
Duke Energy has given me helpful information on how to respond to Peak Days	9.2	72
I'm confident that I know which hours of the day I can earn credits during Peak Days	9.5	83

How much do you agree with...	Average Rating (n=193)	Net Promoter Score
The Peak Time Credit program is easy to understand	9.2	71
I would make additional effort to reduce my usage during Peak Days if the bill credit was greater	9.0	67
Number of Peak Days is reasonable	8.9	57
I would recommend the Peak Time Credit program to friends or family	8.6	49
Peak Days work with my household's schedule	8.0	26

How satisfied are you with...	Average Rating (n=192)	Net Promoter Score
Duke Energy's provided information on how the pilot works	9.0	63
The Peak Time Credit program	8.2	38
The bill credits you have earned through the Peak Time Credit Program	6.8	-1

Statement	Detractors (Rating 0-6)	Passives (Rating 7-8)	Promoters (Rating 9-10)
Number of Peak Days is reasonable	\$0.61 (20)	\$1.28 (62)	\$0.81 (127)
The Peak Time Credit program is easy to understand	\$1.11 (13)	\$1.01 (47)	\$0.82 (150)
Peak Days work with my household's schedule	\$0.80 (45)	\$1.12 (71)	\$1.70 (94)
I would recommend the Peak Time Credit program to friends or family	\$0.74 (31)	\$0.81 (54)	\$0.90 (125)
I would make additional effort to reduce my usage during Peak Days if the bill credit was greater	\$0.93 (21)	\$1.20 (41)	\$0.75 (146)

How satisfied are you with?	Detractors (Rating 0-6)	Passives (Rating 7-8)	Promoters (Rating 9-10)
The Peak Time Credit program	\$0.64 (35)	\$0.52 (71)	\$0.88 (104)
Duke Energy's provided information about the pilot	\$0.90 (18)	\$0.82 (55)	\$0.85 (137)
The bill credits you earned through the peak time credit program	\$0.70 (76)	\$1.07 (72)	\$0.72 (62)

Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021

STAFF-DR-01-002

REQUEST:

Refer to the Application, paragraph 16. Also, refer to Case No. 2020-00371,¹ Application, paragraph 16. Explain whether the reduction in Load Impacts Achieved from 21,255,939 kWh in fiscal year July 2019-June 2020 to 10,962,635 kWh in fiscal year July 2020-June 2021 is solely a consequence of the COVID-19 restrictions. If not, what other factors were involved in the decrease in load impacts achieved.

RESPONSE:

COVID-19 restrictions are the reason why there is a difference in achievement between the two program years. For the July 2019 - June 2020 timeframe, COVID-19 impacted programs starting in mid-March 2020 resulting in three and a half months of program disruption. Much of the July 2020 - June 2021 timeframe for most programs was impacted by COVID-19.

PERSON RESPONSIBLE: Julie Hollingsworth

¹ Case No. 2020-00371, *Electronic Annual Cost Recovery Filing for Demand Side Management by Duke Energy Kentucky, Inc.*, (filed Nov. 16, 2020) Application.

**Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021**

STAFF-DR-01-003

REQUEST:

Refer to the Application, paragraph 32. Explain whether or not the Multi-Family Program is still suspended due to COVID-19 pandemic. If it is not, provide the start date.

RESPONSE:

The program was relaunched in September 2021 with the first installation completed in November 2021.

PERSON RESPONSIBLE: Trisha Haemmerle

**Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021**

STAFF-DR-01-004

REQUEST:

Refer to Application, paragraph 39. Explain whether the trend of a declining number of customers served in the last decade indicates that Duke Kentucky needs to adjust the customer qualification specifications.

RESPONSE:

The decline in participation over the last decade could indicate a review to adjusting the customer qualifications specification. Duke Energy Kentucky would not be opposed to reviewing current qualifications in an effort to increase participation.

PERSON RESPONSIBLE: Heather Klein

**Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021**

STAFF-DR-01-005

REQUEST:

Refer to the Application, paragraph 74. Explain why five customers left the Call Option Peak Load Program in June 2021.

RESPONSE:

These customers' electric consumption had changed such that they lacked confidence in their capability to meet the requirements for CallOption participation.

PERSON RESPONSIBLE: Heather Evans

Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021

STAFF-DR-01-006

REQUEST:

Refer to the Application, paragraph 81. Duke Kentucky notes that it is collaborating with organizations to rally around efforts of the Neighborhood Energy Saver Program. Provide an update of the program and changes implemented due to COVID-19 pandemic.

RESPONSE:

The Neighborhood Energy Program internal planning resumed in late May, early June 2021 with strict COVID procedures to be put in place. A scaled down version of the program will resume without the in-person kick-off event, but rather direct mailings and outbound calls advertising the program in the selected Kentucky neighborhoods sometime in 2022. Also, the door to door canvassing has ceased at this time due to the pandemic. The in-home work will be limited to one technician, wearing proper PPE and social distancing. As the environment around the pandemic changes, our procedures and processes are continuously changing.

PERSON RESPONSIBLE: Heather Klein

Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021

STAFF-DR-01-007

REQUEST:

Refer to the Application, paragraph 82. Provide an update of the cost-effective scores for the proposed additional measures to the Neighborhood Energy Saver Program.

RESPONSE:

Measure Name	UCT	TRC	RIM	PCT
Attic Insulation	0.79	0.23	0.23	1.27
Air Sealing	0.51	0.40	0.30	1.75
Duct Sealing	0.90	0.93	0.61	2.11
Smart Thermostat	0.13	0.15	0.09	2.34

PERSON RESPONSIBLE: Julie Hollingsworth

**Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021**

STAFF-DR-01-008

REQUEST:

Refer to the Application, paragraph 87. Explains why all aspects of the Small Business Energy Saver Program are administered by a single company-authorized vendor.

RESPONSE:

Historically participation from the SMB customer class has been lower in Duke Energy Kentucky nonresidential programs supported by Trade Allies. By contracting with a single authorized vendor the Company guarantees the focus on the underserved SMB market and allows a program design that overcomes other barriers to participation (limited resources and time, limited up front capital, knowledge of energy efficiency opportunities, specifications of equipment and contracting for services) faced by this customer class. Through the authorized vendor, the program has delivered on reaching the SMB customer class and achieving the program goals.

PERSON RESPONSIBLE: Jeremy Morrison

Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021

STAFF-DR-01-009

REQUEST:

Refer to the Application, paragraph 107. Explain why Resource Innovations believes that the cleanest approach is to recruit two new groups of program participants.

RESPONSE:

Participant load reductions often differ between the first year and subsequent years of enrollment in behavior-based (as opposed to direct load control) demand response programs such as the Duke Energy Kentucky PTR Pilot. Accordingly, if newly recruited customers are offered the higher incentive level, it would not be appropriate to compare their first-year load reductions with customers who have already been enrolled on the program for several years under the original incentive amount. A comparison between those two groups of customers would reflect both the change in incentive levels and the difference in the amount of time each customer group was enrolled in the program. It should be noted the remaining population of 759 participants is not large enough to split into two groups for incentive level testing.

To isolate the influence of the different incentive levels, two new groups of customers should be randomly selected for recruitment from the pool of eligible customers. Both groups should receive similar recruitment materials, with the only difference being the incentive level. Any differences in load reductions under this experimental design will be attributable to the difference in incentive levels and not confounded with other factors.

This approach also has the added benefit of providing insights regarding customer enrollment rates at each incentive level.

PERSON RESPONSIBLE: Jean Williams

Duke Energy Kentucky
Case No. 2021-00424
STAFF First Set Data Requests
Date Received: December 3, 2021

STAFF-DR-01-010

REQUEST:

Refer to the Application, Appendix B, page 2 of 7. Also refer to Case No. 2021-000313,¹ Application, Appendix B, page 2 of 7, the 2021-2022 Projected Program Costs, Lost Revenues, and Shared Savings.

- a. In Case No. 2021-00313, the proposed budget for 2021-2022 for the Low-Income Neighborhood Program, including the proposed and yet approved modifications, is \$535,375. In the instant case the proposed budget is \$503,214. Explain why the budget is smaller for the 2022-2023 project year.
- b. In Case No. 2021-00313, the proposed budget for 2021-2022 for the Residential Smart Saver Program is \$1,009,464, including the proposed and yet approved modifications. In the instant case, the proposed budget is \$1,192,589. Explain the increase in the budget for the 2022-2023 project year.
- c. In Case No. 2021-00313 the proposed budget for 2021-2022 for the Power Manger Program is \$702,947. In the instant case, the proposed budget is \$855,519. Explain the increase in the budget for 2022-2023 project year.
- d. Regarding the Peak Time Rebate Pilot Program costs:
 - 1) Provide the individual costs for the proposed \$216,257 program cost.

¹ Case No. 2021-00313, *Electronic Application of Duke Energy Kentucky, Inc. to Amend its Demand Side Management Programs* (filed, Aug. 16, 2021) Application.

- 2) In Case No. 2021-00313, the proposed budget for 2021-2022 for the Peak Time Rebate Program is \$197,549. In the instant case, the proposed budget is \$216,257. Explain the increase in costs from the 2021-2022 projected costs.
 - 3) Refer to the Application Appendix F, page 9 of 10. Explain if the cost of the Proposed Pilot Incentive Test is included in the 2022-2023 budget. If it is not, explain how Duke Kentucky will account for the program costs.
- e. In Case No. 2021-00313, the proposed budget for 2021-2022 for the Small Business Energy Saver Program is \$827,238. In the instant case, the proposed budget is \$771,723. Explain the decrease in costs from the 2021-2022 projected costs.
 - f. In Case No. 2021-00313, the proposed budget for 2021-2022 for the Smart Saver Non-Residential Custom and Prescriptive Programs is \$1,443,155. In the instant case, the proposed budget is \$1,218,433. Explain the decrease in costs from the 2021-2022 projected costs.

RESPONSE:

- a. The proposed budget in Case No. 2021-00313 only included the first six months of the new modifications if implemented. The proposed budget in the instant case includes costs for twelve months of the new modifications; however, the Low-Income Neighborhood program, even with proposed additional modifications, is forecasting a slight decrease in impacts to be achieved in 2022 – 2023 than the forecast in Case No. 2021-00313; resulting in a subsequent decrease in costs.
- b. The proposed budget in Case No. 2021-00313 only included the first six months of the new modifications if implemented. The proposed budget in the instant case

includes costs for twelve months of the new modifications; if approved and implemented.

- c. Power Manager is forecasting a significant increase in impacts achieved for the 2022- 2023 fiscal year resulting resulting in a subsequent increase in costs.
- d. The line item cost estimates for the PTR Pilot program for the fiscal year July 2022 through June 2023 are:

1)

Program	Cost
EM&V	\$84,995
Incentives	\$18,320
Administration and Implementation	\$112,942
Total	\$216,257

- 2) The increase in cost is directly related to the proposed additional research related to the level of incentive offered to customers. See paragraphs 104 through 108 of the Application for related information.
- 3) The EM&V costs for the proposed pilot incentive test are included in the proposed budget.

- e. Small Business Energy Saver is forecasting a slight decrease in impacts to be achieved in 2022 – 2023 than the forecast in Case No. 2021-00313; resulting in a subsequent decrease in costs.
- f. Smart Saver Non-Residential is forecasting a slight decrease in impacts to be achieved in 2022 – 2023 than the forecast in Case No. 2021-00313; resulting in a subsequent decrease in costs.

PERSON RESPONSIBLE: Julie Hollingsworth – a. thru c., e., f.
Bruce Sailors – d.