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THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Annual Energy
Efficiency Portfolio Status Report of
Duke Energy Ohio, Inc.

)
) Case No.15-454-EL-EEC
)

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ANNUAL ENERGY EFFICIENCY STATUS REPORT
OF DUKE ENERGY OHIO, INC.

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COMPLIANCE STATUS REPORT

This portfolio status report represents Duke Energy Ohio, Inc.'s sixth filing of a status report on the load impacts achieved through implementation of its energy efficiency and demand response programs pursuant to Rule 4901:1-39-05 (C), O.A.C. This report is composed of the following two sections: (1) Compliance Benchmarks which provide information on load impact achievements relative to the baseline and (2) Program Performance Assessment which summarizes program activities and evaluation, measurement, and verification information. Following this report are eleven appendices that fulfill the remaining requirements set forth in the Commission's regulations. For the reasons

1. Compliance Benchmarks

4901:1-39-05 (A) and (B) Initial Benchmark Report

Pursuant to Rule 4901:1-39-05 (A), O.A.C., Duke Energy Ohio must file the following information in a benchmark report:

- (1) The energy and demand baselines for kilowatt-hour sales and kilowatt demand for the reporting year; including a description of the method of calculating the baseline, with supporting data.
- (2) The applicable statutory benchmarks for energy savings and electric utility peak-demand reduction.

In compliance with 4901:1-39-05(B), in preparing the baseline, Duke Energy Ohio is required to adjust the sales and/or demand baseline for normal weather as well as for changes in numbers of customers, sales, and peak demand to the extent such changes are outside its control.

This benchmark update report provides information on two areas. The first area involves the baseline for 2014, including a discussion of adjustments made to normalize for weather and

to adjust for changes in numbers of customers, sales, and peak demand, where those changes are outside the control of Duke Energy Ohio. The second area involves an estimate of the statutory benchmarks for energy savings and electric utility peak-demand reduction.

In estimating the baseline for Duke Energy Ohio for the year 2014, the Company uses the three-year average of the actual level of total energy sold (sales plus losses) and peak demand, adjusted for differences from normal weather. Table 1 provides the historical level of total energy (kWh) for the years 2006 to 2013, the amount of the weather adjustment, and the weather normalized level of total energy.

Table 1 - Duke Energy Ohio Baseline and Benchmark for 2014

Year	Total Energy (MWh)	Weather Normalization Adjustment (MWh)	Weather Normal Level of Total Energy (MWh)	Baseline: Three Year Average (MWh)	Benchmark Percentage	Benchmark Requirement (MWh)
2006	22,402,660	262,896	22,665,556			
2007	23,510,777	(763,963)	22,746,814			
2008	22,321,489	(72,401)	22,249,088			
2009	20,405,122	320,494	20,725,616	22,553,819	0.3%	67,661
2010	22,545,823	(621,454)	21,924,369	21,907,173	0.5%	109,536
2011	20,238,172	(207,407)	20,030,765	21,633,024	0.7%	151,431
2012	19,919,494	(15,568)	19,903,926	20,893,583	0.8%	167,149
2013	19,992,587	92,375	20,084,961	20,619,687	0.9%	185,577
2014				20,006,551	1.0%	200,066

Year	Peak Demand (MW)	Weather Normalization Adjustment (MW)	Weather Normal Level of Peak Demand (MW)	Baseline: Three Year Average (MW)	Benchmark Percentage	Benchmark Requirement (MW)	Incremental Benchmark Percentage	Incremental Benchmark Requirement (MW)
2006	4,520	71	4,591					
2007	4,607	(279)	4,328					
2008	4,125	337	4,462					
2009	4,002	476	4,478	4,460	1.00%	45	1.00%	44.6
2010	4,114	330	4,444	4,423	1.75%	77	0.75%	33.2
2011	4,398	(28)	4,370	4,461	2.50%	112	0.75%	33.5
2012	4,020	281	4,301	4,431	3.25%	144	0.75%	33.2
2013	4,098	71	4,169	4,372	4.00%	175	0.75%	32.8
2014				4,280	4.75%	203	0.75%	32.1

The Company employs the following process to normalize kWh and kW for differences in the weather: Using econometric equations for each customer class, from the load forecast process discussed in the Long-Term Forecast Report filing, the adjustment process for kWh is performed as follows:

Let: $KWH(N) = f(W(N))g(E)$

$$KWH(A) = f(W(A))g(E)$$

Where: $KWH(N)$ = electric sales - normalized

$W(N)$ = weather variables - normal

E = economic variables

$KWH(A)$ = electric sales - actual

$W(A)$ = weather variables – actual

Then: $KWH(N) = KWH(A) * f(W(N))g(E)/f(W(A))g(E)$
 $= KWH(A) * f(W(N))/f(W(A))$

With this process, weather-normalized sales are computed by scaling actual monthly sales for each class by a factor from the econometric equation that accounts for the impact of deviations from monthly normal weather. Similarly, using an econometric equation for peak, the adjustment process for kW is performed as follows:

Let: $KW(N) = f(W(N))g(E)$

$$KW(A) = f(W(A))g(E)$$

Where: $KW(N)$ = electric peak demand - normalized

$W(N)$ = weather variables - normal

E = economic variable

$KW(A)$ = electric peak demand - actual

$W(A)$ = weather variables - actual

Then: $KW(N) = KW(A) * f(W(N))g(E)/f(W(A))g(E)$
 $= KW(A) * f(W(N))/f(W(A))$

With this process, weather-normalized peak demand is computed by scaling actual peak demand by a factor from the econometric equation that accounts for the impact of deviations from normal weather.

Once total energy and peak demand have been adjusted for normal weather, the computation of the baseline for 2014 is simply the average of the load values for the three years 2011 to 2013. The baseline values for energy and demand are provided above in Table 1.

4901:1-39-05(C)(1)(a)-(c) Portfolio Status Report and Compliance Demonstration

In accordance with 4901:1-39-05(C)(1)(a), with the establishment of the baseline energy and peak demand, the level of the statutory benchmark is computed by applying the appropriate incremental percentage of achievement, as established in S.B. 221, to the baseline. The computation of the benchmark achievement level for 2014 is provided above on Table 1. The baseline for energy is 200,066 MWH and the baseline for peak loads is 32.1 MW.

Duke Energy Ohio respectfully submits that this information is responsive to all of the baseline and benchmark calculations as set forth in Rule 4901:1-39-05(A), O.A.C., and requests that the Commission approve these baseline and benchmark calculations as submitted.

In response to 4901:1-39-05(C)(1)(b), which requires a comparison of the applicable benchmark of actual energy savings and peak-demand reductions achieved, as a result of the Company's 2014 efforts to promote customer participation in its energy efficiency and demand response programs, the Company has achieved incremental energy and demand impacts in 2014 as summarized below in Table 2. Details of impacts for each program are provided in Appendix A.

Table 2: Incremental Energy Efficiency and Demand Response Program Impact Summary			
	Participants / Measures	MWH	MW
<u>Demand Response Programs</u>			
Power Manager			2.3
PowerShare			71.8
PowerShare Generators			(8.85)
Large Transmission Customer			(29.37)
Home Energy Solutions - DR			0.06
Total Demand Response Programs		0	36.0
<u>Energy Efficiency Programs</u>			
Residential Programs	1,923,325	80,983	13
Non-Residential Programs	368,847	71,286	13
Total EE Programs	2,292,172	152,269	25.4
Prior Bank per SB-221		544,061	236.9
Total Load Impacts		696,329	298.3

Table 3 provides a comparison of the impacts relative to the benchmarks previously mentioned. This indicates that the Company has complied with the S.B. 221 statutory benchmarks for the year 2014.

Table 3: Comparison of Achieved Impacts to the 2014 Benchmark			
	2014 Benchmark	Achievement	Variance Over / (Under)
MWH	200,066	696,329	496,264
MW	32.1	298.3	266.2

In addition, since the Company's cumulative efforts continue to exceed the cumulative benchmark requirement, there is still a residual amount of load impacts that carry forward to support achievement of the benchmarks for 2015 and beyond.

In compliance with 4901:1-39-05(C)(1)(c), an affidavit indicating that the reported performance complies with the statutory benchmarks is provided in Appendix B.

4901:1-39-05(C)(2) Program Performance Assessment

As part of Duke Energy Ohio's Electric Security Plan (ESP) filing in 2008, the Company proposed a set of energy efficiency and demand response programs. These were subsequently approved on December 17, 2008 and reaffirmed (except for the Prepaid Meter Program) in the Commission's Order in Case No. 09-1999-EL-POR. Implementation of the Save-A-Watt programs began January 2009. On July 20, 2011, Duke Energy Ohio filed for a new recovery mechanism to replace Save-A-Watt due to expire on December 31, 2011. In Case No. 11-4393-EL-RDR, Duke Energy Ohio proposed a recovery mechanism as well as three new programs. The recovery mechanism and programs were approved on August 15, 2012. In compliance with the Commission's Order, after reviewing the market potential study conducted by Forefront Economics Inc, Duke Energy Ohio filed its three-year portfolio plan for 2014-2016 with the Commission on April 15, 2013. The Commission's approved the new portfolio proposed by the Company in its Opinion and Order in Case No. 13-0431-EL-POR on December 4, 2013.

2. Program Performance Assessment

Program descriptions and key activities for its current portfolio are provided below.

4901:1-39-05 (C)(2)(a)(i) Program Descriptions and Key Activities

Residential Programs

Smart Saver[®] Residential Program

The Smart Saver[®] Residential program offers a variety of programs and measures that allow customers to take action and reduce energy consumption. The program is available to residential customers served by Duke Energy Ohio.

Compact Fluorescent Lamps (CFL) Program

The CFL Program is designed to increase the energy efficiency of residential customers by offering customers CFLs to install in high-use fixtures within their homes. The CFLs are offered through an on-demand ordering platform, enabling eligible customers to request CFLs and have them shipped directly to their homes. Eligibility is based on past campaign participation (i.e. coupons, Business Reply Cards (BRCs) and other Duke Energy Ohio programs distributing CFLs). Bulbs are available in 3, 6, 8, 12 and 15 pack kits that have a mixture of 13 and 20 watt bulbs. The maximum number of bulbs available for each customer is 15, but customers may choose to order less.

Customers have the flexibility to order and track their shipment through three separate channels:

1) Telephone:

Customers may call a toll-free number to access the Interactive Voice Response (IVR) system which provides prompts to facilitate the ordering process. Both English and

Spanish-speaking customers may easily validate their account, determine their eligibility and place their CFL order over the phone.

2) Duke Energy Web Site:

Customers can go online to complete the ordering process. Eligibility rules and frequently asked questions are also available.

3) Online Services (OLS):

Customers who participate in the Online Services program are encouraged to order their CFLs through the Duke Energy Ohio web site if they are eligible.

The benefits of providing these three distinct channels include:

- Improved customer experience
- Advanced inventory management
- Simplified program coordination
- Enhanced reporting
- Increased program participation
- Reduced program costs

Customers continue to utilize the simple ordering process and the convenience of bulbs being shipped directly to their home. Over 88,000 orders were placed in 2014; resulting in over 1,245,000 bulbs distributed. Fifty-seven percent of the orders were placed by calling the toll free phone number, seventeen percent of the orders were placed on the Duke Energy Ohio web site and twenty-six percent on the OLS platform.

The overall strategy of the program is to reach residential customers who have not adopted CFL bulbs. Duke Energy Ohio will continue to educate customers on the benefits of CFLs while addressing barriers for consumers who have not participated in the program.

Additionally, the ease of program participation will also be highlighted to encourage use of the on-demand ordering platform.

In May of 2014, a new phone IVR Billing Channel 'Intercept' was initiated. The automated phone IVR message path enables customers to quickly qualify and order free CFL's. Over 626,000 free CFL bulbs were ordered in OH through the new IVR channel. Additionally, direct mail campaigns target Prizm segments of Ohio customers with a high propensity to participate in the program. Marketing pieces and personalized letters include the customer account number for easy ordering through the IVR or Web platform.

Duke Energy Ohio will continue to market the CFL program through various channels including Email, Bill Messages, Bill Envelopes, Social Media, Direct Mail, Printed Collateral, Earned Media¹, and other Duke Energy Program collaboration efforts. Response of each channel is tracked and monitored. Innovative marketing campaigns and tactics were utilized to improve awareness for hard to reach and late adopter² customers. Cross-promotion with the new online Savings Store was used to help offer lighting for specialty applications and promote LED technology to customers who are eligible for both lighting programs.

Online Savings Store

Duke Energy Ohio expanded its lighting offer to include specialty bulbs such as recessed lights, candelabras, globe, three-way bulbs, capsules and dimmable bulbs. Purchase limits vary by category but customers may purchase additional bulbs without incentives if they choose. The web based ecommerce store launched on April 26th, 2013 and provides discounted specialty lights and ships directly to the home.

¹ Earned media refers to favorable publicity gained through promotional efforts other than advertising.

² Customers who are slow to start using or buying a new product, technology, or idea.

Utilizing the existing on-demand CFL platform, customers may participate in the online Savings Store via:

1) Duke Energy Web Site

Customers may go the Savings Store landing page to learn more about the program, review frequently asked questions and CFL recycling information. A savings calculator is available to estimate how much money customers can save and how sustainable they can be by purchasing discounted energy bulbs from the Duke Energy Savings Store.

2) Online Services (OLS)

Customers who participate in the Online Services program are encouraged to visit the Savings Store to order discounted CFL and LED bulbs through the Duke Energy Ohio web site if they are eligible.

3) Order by Phone

In September of 2014, Duke Energy began offering phone ordering as an option for customers to order bulbs from the Duke Energy Savings Store. Over 300 orders were placed over the phone resulting in sales of more than 4,500 bulbs through the end of 2014.

Customers who choose to shop at the Savings Store will see a wide variety of discounted CFL and LED bulbs for different fixtures around their home. Bulbs are available in single and multi-pack sizes and various wattages. A shopping assistant is available to help customers select the right bulb types for various applications, as well as resources to understand the difference between lumens versus watts and how to compare them. The savings calculator can show how much customers may save by switching to energy efficient lighting.

The Savings Store is managed by Energy Federations Incorporated (EFI). Customers can view special promotions and feature products as well as track order history. EFI, handles inquiries regarding products, payments, shipping and warranties.

Over 11,600 orders were placed in 2014; resulting in over 168,000 bulbs purchased. Twenty-nine percent of orders were placed through OLS and seventy-one percent of orders were placed through the Duke Energy Ohio web site. The top five categories purchased on the Savings Store include; CFL reflectors, CFL globes, CFL candelabra, LED reflectors and LED A-line capsule bulbs.

Duke Energy Ohio will market the online Savings Store program through various channels including Email, Bill Messages, Bill Envelopes, Social Media, Direct Mail, Printed Collateral, Earned Media, and other Duke Energy Program collaboration efforts. Response of each channel is tracked and monitored. Special shipping promotions including \$5 flat rate shipping and free shipping for orders of \$25 or more were offered in 2014 as incentives to improve participation.

Savings Store Program Potential Changes

Savings Store enhancements considered for 2015 include; additional shipping and discount options, product comparison, dynamic savings information, support for additional payment methods and improved customer experience and communication. Duke Energy is considering the addition of four new bulb categories in OH for 2015: LED Outdoor Reflectors, LED Candelabras, LED Globes and LED 3-way bulbs to increase the variety of bulbs available to OH customers.

General Lighting Program Potential Changes

The Company continually evaluates the effectiveness of its overall lighting program to consider the addition of new delivery channels, in order to capture the potential customers who may not be prone to utilize the existing channels. In 2015, the Lighting program management team is considering the addition of a retail channel to provide incentives to its customers to purchase LEDs and other specialty bulbs.

Multifamily Energy Efficiency Program (Formally Property Manager Program)

The Multifamily Energy Efficiency Program is an extension of the CFL program and allows Duke Energy Ohio to target multifamily apartment complexes. Eligible units are Duke Energy Ohio served apartments on a residential rate and are located at properties that have four or more units. As of March 2014, Franklin Energy replaced Honeywell as the program administrator. They manage the program and partner with Ohio property managers to enroll multifamily properties.

The program helps property managers upgrade lighting with energy efficient 13 watt CFLs and also save energy by offering water measures such as bath and kitchen faucet aerators, water saving showerheads and pipe wrap. The water measures are available to eligible customers with electric water heating. These measures assist with reducing maintenance costs while improving tenant satisfaction by lowering energy bills.

Unlike the Property Manager program, the Multifamily Energy Efficiency program offers properties the option of DI (direct install) service by Franklin Energy crews. However, Property Managers still have the ability to have their own property maintenance crews complete the installations.

The CFLs and water measures are installed during scheduled direct install visits by Franklin Energy crews or routine maintenance visits by property personnel. In the case of direct

installs, crews carry tablets to keep track of what is installed in each apartment. In the case of DIY installations, the Property Manager maintenance crew tracks the number of measures installed and reports them back to Franklin Energy. Franklin Energy then validates this information and uploads the results to Duke Energy.

After installations are completed, Quality Assurance (QA) inspections are conducted on 20% of properties that completed installations in a given month. The QA inspections are conducted by an independent third party.

Franklin Energy used outbound calling as the primary tactic to solicit initial interest in the program from Property Managers in Duke Energy Ohio. On-site visits by appointment were also used as a way to attract properties to participate in the program.

In addition to proactively marketing the program using the above methods, a Multifamily Energy Efficiency promo and public website landing page were developed for managers to learn more about the program. Here, a program brochure and a frequently asked question sheet are available for download. Once enrolled, Franklin Energy provides property managers with a variety of marketing tools to create awareness of the program to their tenants. These include program posters to leave in common areas and letters to each tenant informing them of what is being installed and when the installation will take place. In addition, tenants are provided an educational leave-behind brochure when the installation is complete. This provides additional detail on the installed measures as well as tear-off customer satisfaction survey to fill out and mail back to Duke Energy to provide valuable program feedback.

Multifamily Energy Efficiency Program- Potential Changes

At the moment, program management is considering raising the 12 CFL limit per apartment. Over the course of 2014 installations, Franklin Energy encountered additional

opportunities to install CFLs in larger apartments but were restricted by this 12 bulb limitation. One option being considered is a tier-based approach that would adjust the limit based on apartment size. Under this scenario, Franklin would be able to install up to 12 bulbs in a 1 bedroom apartment, up to 15 bulbs in a 2 bedroom apartment and up to 18 bulbs in a 3 bedroom apartment.

A second potential program change revolves around the current kitchen aerator offering. Through customer feedback via customer satisfaction surveys and QA visit, there appears to be a desire for a higher GPM offering. This is currently under review by program management.

Save Energy and Water Kit Program (SEWKP)

The SEWKP Program was launched in April of 2014 and is designed to increase the energy efficiency of residential customers by offering customers Low Flow Water Fixtures and Insulated Pipe Tape to install in high-use fixtures within their homes. These energy saving devices are offered through a Direct Mail Campaign, enabling eligible customers to request to have these devices shipped directly to their homes, free of charge. Eligibility is based on past campaign participation (including this program and any other programs offering low flow devices that Duke Energy has offered to Ohio customers) and the customer must have an electric water heater. Customers receive a kit with varying amounts of the following devices: low flow bath and kitchen aerators, low flow shower heads and insulated pipe tape. The kit also includes directions and items to help with installation.

Over 870 kits were shipped to Ohio customers in 2014; resulting in over 3,100 bath aerators, 870 kitchen aerators, 1,600 shower heads and 4,350 feet of insulated pipe wrap being distributed.

The overall strategy of the program is to reach residential customers who have not adopted low flow water devices and hot water pipe insulation. Duke Energy Ohio will continue to educate customers on the benefits of using low flow water devices and saving the energy used to heat water, while addressing barriers for consumers who have not participated in the program.

Duke Energy Ohio will continue to market the SEWKP program through Direct Mail and the response will continue to be tracked and monitored.

SEWKP Program Potential Changes

Innovative marketing campaigns and tactics will be utilized to improve awareness for hard to reach and late adopter³ customers. An Online platform for the program will be pursued in 2015.

Heat Pump Water Heater Program (HPWH)

The HPWH Program was launched in August of 2014 and is designed to encourage the adoption of energy efficient water heating in new or existing residences. Duke Energy Ohio served homeowners currently residing in or building a single family residence, condominium, or duplex home are eligible for this program. Installation of a high efficiency heat pump water heater will result in a \$350 incentive. Duke Energy program personnel establish relationships with home builders, plumbing contractors, and national home improvement retailers who interface directly with residential customers. All incentives are paid directly to customers upon approval of a completed application.

Duke Energy Ohio will continue to educate customers on the benefits of heat pump water heaters, while addressing barriers for consumers who have not participated in the program.

³ Customers who are slow to start using or buying a new product, technology, or idea.

Variable-Speed Pool Pump Program

The Variable-Speed Pool Pump Program was launched in August of 2014 and is designed to encourage the adoption of energy efficient, variable-speed, pool pumps for the main filtration of in-ground residential swimming pools. Duke Energy Ohio served homeowners currently residing in or building a single family residence with an in-ground swimming pool are eligible for this program. Installation of a high efficiency, variable-speed pool pump will result in a \$300 incentive. Duke Energy program personnel establish relationships with home builders and pool professionals who interface directly with residential customers. All incentives are paid directly to customers upon approval of a completed application.

Duke Energy Ohio will continue to educate customers on the benefits of variable-speed pool pumps, while addressing barriers for consumers who have not participated in the program.

Residential HVAC Program

Duke Energy Ohio served homeowners currently residing in or building a single family residence, condominium, duplex or mobile home are eligible for this program. Installation of a high efficiency heat pump or air conditioner will result in a \$300 incentive. GoodCents serves as the back office support for the program while Duke Energy program personnel establish relationships with home builders and HVAC contractors who interface directly with residential customers. These trade allies adhere to program requirements and submit the incentive application. Once the application is processed, GoodCents disburses the incentive funds. For replacement of an existing system, a Duke Energy Ohio customer receives \$200 and the HVAC

contractor receives the remaining \$100. For new home construction, the home builder receives the full \$300 incentive but has the option to pass the incentive on to the customer. For the additional complimentary measures offered through the HVAC program, eligible customers will receive a \$50 incentive for tuning up a heat pump or air conditioner, installation of attic insulation and completion of air sealing will result in a \$250 incentive, installation of duct insulation will result in a \$75 incentive, and completion of duct sealing will result in a \$100 incentive. All incentives are paid directly to customers upon approval of a completed application. GoodCents disburses the incentive funds to the appropriate party upon application approval. GoodCents also handles calls from trade allies and customers about the program.

Duke Energy Ohio has formed strong relationships with trade allies and continues to develop relationships with trades serving the new measures. These partnerships help application fulfillment and prompt payment of incentives as well as maintain top-of-mind awareness of the program and its benefits. The buy-in and participation of the trade ally network is vital to the success of the HVAC segment of the Program. Duke Energy Ohio continues to inform the trade ally network of the new measures; however, the program shifted market practices away from traditional practices which rely heavily on decentralized training and varying knowledge levels, as well as imprecise and manual field calculations, toward industry trained and certified trade allies using higher quality instruments and processes which have proven challenging and has slowed the recruitment process. While some trade allies have registered and are capable of offering these additional measures, Duke Energy Ohio expects a significant increase in trade ally engagement and customer participation in 2015.

Residential HVAC Program Potential Changes

Duke Energy is continuously evaluating new ways to improve relationships with trade allies and customers while making the program both more cost effective and user friendly. Due to federal increases in HVAC efficiency standards Duke Energy will be re-evaluating the current heat pump and air conditioner measures offered via the Smart Saver® Program during the coming year and is currently evaluating a January 1, 2016 implementation date for these new and/or updated measures. Other potential program changes that will be evaluated in the coming year may include refinement of program field requirements, improved trade ally tools and network management strategies, distribution channels, as well as a review of third-party vendor(s). Duke Energy will make changes in these areas when it is determined that the change will benefit customers and increase program value to the market and within the regulatory parameters set forth.

Residential Energy Assessments Program

The Residential Energy Assessments program includes Home Energy House Call (HEHC).

HEHC targets residential customers that own a single family home with at least four months of billing history. HEHC is a free in-home assessment designed to help customers reduce energy usage and save money. Duke Energy Ohio partners with several key vendors to administer the program in which an energy specialist completes a 60 to 90 minute walk through assessment of the home and analyzes energy usage to identify energy saving opportunities. The Building Performance Institute (BPI) certified energy specialist discusses behavioral and equipment modifications that can save energy and money with the customer. A customized report is provided to the customer that identifies actions the customer can take to increase their home efficiency. Example recommendations might include the following:

- Turning off vampire load equipment when not in use
- Turning off lights when not in the room
- Using CFLs in light fixtures
- Using a programmable thermostat to better manage heating and cooling usage
- Replacing older equipment
- Adding insulation and sealing the home

Customers receive an Energy Efficiency Starter Kit with a variety of measures that can be directly installed by the energy specialist. The kit includes measures such as energy efficient lighting, low flow shower head, low flow faucet aerators, outlet/switch gaskets, weather stripping and energy saving tips booklet.

HEHC Program Potential Changes:

- Some program enhancements to increase program impacts, raise participation satisfaction levels, and establish Duke Energy as a preferred energy provider being considered include: Evaluating energy efficient lighting offers such as LEDs, specialty bulbs and other measures for the Energy Efficiency Start Kit.
- Enhancing the online enrollment experience to enable the customer to select, schedule, cancel and or modify their appointment time.
- Consider new marketing channels in Ohio such as event and community outreach.
- Propensity modeling to allow for more targeting
- Product training program to encourage cross sell or cross promotion of other relevant offers.

Energy Efficiency Education Program for Schools

The Energy Efficiency Education Program for Schools Program is an energy conservation program available in Ohio. The Energy Efficiency Education Program is available to K-12 students enrolled in public and private schools and who reside in households served by Duke Energy Ohio.

The Program provides principals and teachers with an innovative curriculum that educates students about energy, electricity, ways energy is wasted and how to use our resources wisely. The centerpiece of the curriculum is a live interactive theatrical production delivered by two professional actors to students in kindergarten through eighth grade. Performances differ for elementary and middle school students. Teachers also received educational materials focused on concepts such as energy, renewable fuels, and energy efficiency for classroom and student take home assignments. All workbooks, assignments and activities meet state curriculum requirements.

School principals are the main point of contact and will schedule the performance at their convenience for the entire school. Once the principal has confirmed the performance date and time, two weeks prior to the performance, all materials are delivered to the principal's attention for distribution. Materials include school posters, teacher guides, classroom and family activity books.

Students are encouraged to complete a home energy survey with their family (found in their activity book), so they can receive an Energy Efficiency Starter Kit. The kit contains specific energy efficiency measures to reduce home energy consumption. It is available at no cost to all student households at participating schools, including customers and non-customers.

Since 2011, The National Theatre for Children has partnered with Duke Energy Ohio to engage students in the Ohio service territory on energy and energy efficiency through live theatrical performances. For the 2014-2015 school year, two new productions were launched. The 25-minute program, *The Treasure Trove of Conservation Cove* was introduced to elementary students and teaches them how to use resources wisely through a fun pirate treasure hunt featuring a cast of colorful characters. *The Resource Raiders* is a 40-minute program introduced to Middle School students which combines sketch comedy with improvisation and audience participation to teach students about natural resources and compliment student studies in science and energy.

Additionally, Duke Energy Ohio has enhanced the program by

- Leveraging the program webpage at duke-energy.com to showcase the program and bring awareness to employees and other stakeholders through events and digital signage
- Partnering with Duke Energy Account and District Managers to leverage existing relationships in the community and develop positive PR
- Offering school, classroom and family contests for kit sign ups to stir additional excitement in the schools/classrooms throughout the school year
- Utilizing social media to encourage awareness and participation

As the program goes into its fifth year, there will be a review to enhance the Energy Efficiency Starter Kit by identifying new measures and also the opportunity to seek new bids for the program.

Low Income Services Program

The Low Income Services Program provides assistance to low income customers through several measures. The upfront costs of high efficiency equipment are an especially difficult barrier for low income customers to overcome. The Weatherization and Refrigerator Replacement program is available to all customers within Duke Energy's service territory, with a household income up to 200% of the federal poverty level and who have not participated in the program within the past 10 years.

The Electric Maintenance Service program is available for low-income elderly and disabled customers up to 175% of poverty level. This program offers low-cost solutions for energy efficiency. Customers may receive energy efficiency products and services such as compact fluorescent bulbs, low flow showerheads and aerators, water heater wraps, HVAC cleaning, HVAC filters, and energy efficiency education.

The Habitat Lighting program is offered to new home builders, participating in Habitat for Humanity and that reside within Duke Energy's service territory. Participants enrolled in Habitat for Humanity's building program, receive installed energy efficient lighting fixtures throughout their home. Fixtures are installed at the time of the home's construction and are part of the home's overall energy efficient structure.

The Electric Pilot program is offered to customers residing in the Duke Energy Ohio service territory. The program is offered through a partnership with People Working Cooperatively (PWC). The program targets low income customers and focuses on energy efficiency. Customers receive whole-house weatherization services which include installation of energy efficiency measures and education. Duke Energy Ohio will purchase and recognize the energy and demand savings achieved through the whole-home weatherization in the Duke Energy Ohio service territory that are currently funded by leveraged funds, funding from sources

other than Duke that are not explicitly tied to efficiency. The pilot is intended to allow the Company to recognize efficiency impacts that were previously unrecognized, achieve these impacts in a cost-effective manner, and create a new funding stream for additional whole-home weatherization to be performed in the Duke Energy Ohio Service Territory.

These programs are promoted through, but not limited to, Community Action Agencies, Non-Governmental Organizations (NGO's), and direct mail to customers.

Duke Energy Ohio partnered with Ohio Partners for Affordable Energy (OPAE) to provide refrigerator testing and replacement services within Duke Energy's Ohio service territory. The program launched January 1, 2014. OPAE worked with local agencies to provide additional marketing techniques to help drive participation.

My Home Energy Report (formerly called Home Energy Comparison Report)

My Home Energy Report (MyHER or the Program) is a periodic comparative usage report that compares a customer's energy use to similar residences in the same geographical area based upon the age, size and heating source of the home. Specific energy saving recommendations are included in the report to encourage energy saving behavior.

The reports are distributed up to 12 times per year (delivery may be interrupted during the off-peak energy usage months in the fall and spring). The report delivers energy savings by encouraging customers to alter their energy use. The monthly and annual energy usage of each home is compared to the average home (top 50%) in their area as well as the efficient home (top 25%). Suggested energy efficiency improvements given the usage profile for that home are also provided. In addition, measure-specific offers, rebates or audit follow-ups from other Company offered programs are offered to customers, based on the customer's energy profile.

Target customers reside in individually-metered, single-family residences with active account and 12 months of usage history. Analyzing only single-family residences eliminates the possibility of erroneous data caused by thermal transfer between adjacent units in multi-family structures.

In July 2013, the format of the report was modified. The modified report shows the comparison of customer usage in kWh instead of dollars. This modification was implemented to minimize the possibility of confusion associated with dollars showing on the report and the customer's bill. The new report format enabled The Company to start sending the report to qualified budget billing customers in February of 2014 increasing participation by 50,000 customers.

MyHER Program Changes:

The MyHER Interactive portal will be rolled out in Q1 2015. The portal will allow customers to see how they use energy, set and track energy saving goals, interact with calculators and ask an expert for advice. The portal will also include weekly email challenges. The portal will be available in mobile format by the end of 2015.

Appliance Recycling Program

The Duke Energy Ohio Appliance Recycling Program (ARP) launched on October 4, 2012 in cooperation with the selected program vendor, JACO Environmental, Inc. ARP encourages customers to responsibly dispose of functional refrigerators and freezers. Customers enroll in the program receive free in home appliance pick up and receive a \$30 incentive for participating in the program. Up to 95% of the appliance materials will be recycled in an environmentally responsible manner and the remaining materials are disposed of at landfills. Program marketing utilized a variety of methods to engage customers including the following:

- Direct mail
- Email blast
- Bill inserts & messages
- Digital, print, and broadcast media
- Social media
- School presentation
- Special events and promotions
- Newsletters

The advertising strategy was diverse and effective as reflected in the “How Heard” responses from our customers provided in the table below. Some channels were clearly more memorable for customers, but there were often multiple outreach efforts taking place at the same time which could mean that multiple outreach methods could have influenced customer behavior. The Filet-A-Fridge event at James A Cawood Elementary School outside of Cincinnati was a unique way for students and teachers to “hear about” and watch how a refrigerator is recycled.

Customer “How Heard” about the program table:

Marketing Channel	%
Appliance retailer	4.4%
Electric utility office	1.0%
Friend/neighbor	11.4%
Magnet mailer	0.5%
Newspaper advertising	10.7%
Repeat customer	0.7%
Television advertising/news	13.9%
Truck sign	0.3%
Utility bill insert	43.8%
Utility company web site	6.1%
Utility newsletter	1.7%
Web advertisement/search	5.4%

Total	100%
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The Duke Energy Ohio Appliance Recycle Program recycled 3,636 (2,946 refrigerators and 690 freezers) appliances in 2014 and ended the year at 83% of annual participation goal.

Appliance Recycling Program Potential Changes

Program results fell short of expectations even though considerable time and effort was expended in marketing campaigns.

DE Ohio residential customers received two bill inserts and three email blasts campaigns in 2014. In addition a robust Digital Media campaign was launched promoting the Appliance Recycle Program from April to August using Google, Yahoo, & Pandora as primary channels. On April 3rd, 2014 Duke Energy hosted an ARP School “Filet-A-Fridge” event to a class of over 100 James A. Cawood Elementary School students on the importance of recycling. Students were actively engaged in talking about the benefits of recycling & conservation for their family, school, community, and the environment. The presentation concluded with JACO Environmental crew members demonstrating how refrigerators and freezers are “deconstructed” once they were picked up and taken to the Recycle Center. The final Media event of 2014 was held on September 19th at the DE Office in Cincinnati for employees. The event showcased many of Duke Energy’s Energy Efficient Products & Services available to DE customers that are employees. ARP set up a display in the center of the Exposition with two refrigerators that were over 40 years old. Plexiglas display cases with compartments were displayed for each category of material extracted and recycled – Freon, motor oil, steel, copper, aluminum, safety glass, rubber door insulation, foam insulation from the doors, and dangerous PCB-Containing Capacitors.

Low Income Neighborhood Program

The Low Income Neighborhood Program ("Program") assists low-income customers in reducing energy costs through energy education and installation of energy efficient measures to qualified customers. The primary goal of the Residential Neighborhood Program is to empower low income customers to better manage their energy usage.

Duke Energy Ohio has partnered with GoodCents to administer the program. The Program targets neighborhoods with a significant low income customer base using a grassroots marketing approach to interact on an individual customer basis and gain trust. Participation is driven through a neighborhood kick-off event that includes community leaders supporting the benefits of the Program. The purpose of the kick-off event is to rally the neighborhood around energy efficiency and provide thorough and pertinent information on how the program will operate in their neighborhood. Customers will have the option to sign-up for an energy assessment at the time of the event.

In addition to the kick-off event, GoodCents uses the following channels to inform potential customers about the Program:

- Direct mail
- Door hangers
- Press releases
- Community presentations and partnerships
- Inclusion in community publications such as newsletters, etc.

Customers participating in the Program receive an energy assessment to identify energy efficiency opportunities in their home and one-on-one education on energy efficiency techniques. Additionally, the customer receives a comprehensive package of energy efficient

measures, installed by professionally trained technicians. Measures received are based on each home's individual walk-through assessment. For customers receiving furnace filters as part of their comprehensive kit, they will be provided a year's supply after the initial has been installed.

The Program is available only to individually-metered residential customers in neighborhoods selected by Duke Energy Ohio, at its sole discretion, which are considered low-income based on third party data, that includes income level and household size. Areas targeted for participation in this Program will have approximately 50% of the households at an income equal to or less than 200% of the federal poverty level as established by the U. S. Government.

The program launched second quarter, 2013. We have seen a tremendous increase in demand for the program. In the program's second year, we've found that providing additional marketing techniques and neighborhood canvassing provided us an additional stream of participants in each neighborhood. We were able to complete 20% additional homes over our original goal.

Low Income Neighborhood Program Potential Changes

To allow for consistency across all jurisdictions, we will be switching vendors at the end of 2015.

Home Energy Solutions (formerly called Home Energy Management) Program

Home Energy Solutions (HES), which is formally being marketed as HōM™ Energy Manager, launched on June 2, 2014. HES is an approach to delivering energy efficiency solutions to customers in a way that combines a number of energy efficient measures into more valuable solutions. The program combines energy usage information and recommendations with the ability to leverage potential pricing options and energy management offerings into convenient in-home

solutions. HES is a smart grid enabled consumer technology that allows customers and Duke Energy Ohio to manage in-home devices and information to deliver energy efficiency optimization and demand response benefits. Focused on Wi-Fi thermostat at launch, HES will integrate with other devices in the home over time, offering customers critical feedback and control of high use energy devices.

Currently, eligible customers receive up to 2 free two-way communication, programmable thermostats with professional installation. They also have full access to an online customer engagement portal that is accessible through mobile devices, tablets and PCs with Internet access. The portal allows customers to control their energy usage by adjusting their temperature settings, viewing energy efficiency tips and reviewing their historical energy usage compared to similar homes and neighbors.

Customers also have the choice to select from one of three demand response cycling levels: 50%, 75% and 100%. Based on the level selected, there is an annual fee assessed per thermostat installed:

- 50%, \$5.99
- 75%, \$2.99
- 100%, \$0.00

HES marketing efforts focused on eligible Duke Energy Ohio residential customers that own and reside in a single family home with at least 12 month of billing history. Additional eligibility requirements included customers with:

- Central A/C
- Secure wireless broadband Internet connection
- Certified smart meter

- Acceptable/Good credit status
- Residential rate

At the end of December 2014, there were 1,521 customers enrolled and over 1,320 thermostats were successfully installed using a third party contractor.

Home Energy Solutions Program Potential Changes:

In order to increase enrollment numbers and participation in the program, HES is considering modifying the eligibility requirements and program design slightly. Areas under Reducing the 12 month billing history minimum to 6 months

- Including owner occupied, individually metered townhomes and condos
- Reducing the early termination fee of \$175

Power Manager® Program

The Power Manager Program provides incentives to residential consumers who allow the company to cycle their air conditioner's outdoor compressor and fan during peak energy periods between May and September. Participating customers of the Company who have a functioning outdoor A/C unit are eligible for the program.

Participants in the Power Manager program allow Duke Energy Ohio to control their air conditioners during peak summer demand periods. Customers receive a one-time enrollment incentive of \$25 or \$35 depending on the Power Manager option they choose. In addition, they receive credits for each Power Manager event. Following the end of the event season, which runs from May through September, if warranted, customers receive a credit that ensures their total credit for the season is a minimum of \$5 or \$8 depending on the option in which they enrolled.

Due to an unusually cool summer in 2014 there were no Power Manager events outside of the regularly scheduled 1 hour test event that occurred on August, 26th from 4:00 to 5:00 PM.

The Power Manager program manager evaluates conditions to activate a Power Manager event including temperature, heat index, humidity and market conditions as communicated by the regional transmission organization, PJM.

The Power Manager program was successfully promoted in 2014 through outbound calling, zip code specific direct mail, targeted email offers and the company website. Over 2,400 additional Power Manager devices were installed in 2014 using a third party contractor to install the device on customers' A/C units. Marketing efforts were not as robust as in previous years to allow the Duke Energy HōM Energy Manager program an opportunity to establish a customer base in Ohio. The HōM Energy Manager program is a thermostat based program that is somewhat similar to the Power Manager program in that it allows customers to participate in demand response events. Ideally, Duke Energy wants to gain enough experience in marketing of HōM to identify customer segments that prefer the unobtrusive "don't notice the cycling events" experience with Power Manager versus those who desire a "higher touch" experience via HōM.

Power Manager Program Potential Changes:

There are no plans to change the operation of the Power Manager program in 2015.

Non-Residential Programs

Smart Saver[®] Non-Residential Prescriptive Program

The Smart Saver[®] Non-residential Prescriptive Incentive Program provides incentives to commercial and industrial consumers for installation of energy efficient equipment in applications involving new construction, retrofit, and replacement of failed equipment. The program also uses incentives to encourage maintenance of existing equipment in order to reduce energy usage. Incentives are provided based on Duke Energy Ohio's cost effectiveness modeling to assure cost effectiveness over the life of the measure.

Commercial and industrial consumers can have significant energy consumption, but may lack knowledge and understanding of the benefits of high efficiency alternatives. Duke Energy Ohio's program provides financial incentives to customers to reduce the cost of high efficiency equipment. This allows customers to realize a quicker return on investment. The savings on utility bills, allows customers to reinvest in their business. The Smart Saver® program also increases market demand for high efficiency equipment. Because of the increased demand, dealers and distributors will stock and provide high efficient alternatives as they see increased demand for the products. Higher demand can result in lower prices.

The program promotes prescriptive incentives for the following technologies – lighting, HVAC, pumps, variable frequency drives, food services, process equipment, and information technology equipment. Equipment and incentives are predefined based on current market assumptions and Duke Energy's engineering analysis. The eligible measures, incentives and requirements for both equipment and customer eligibility are listed in the applications posted on Duke Energy's Business and Large Business websites for each technology type.

In November, 2014, Duke Energy completed the implementation of a processing system for Smart Saver Prescriptive applications. The new system is linked to Duke Energy's billing information which allows for easier validation of customer eligibility. In 2015, Duke Energy will add an online application to the system to increase the ease and accuracy of the application process.

All non-residential customers served by Duke Energy and pay the EE rider in Ohio are eligible for the Smart Saver® program.

Getting the Trade Allies (TA) to support the program has proven to be the most effective way to promote the program to our business customers. The Smart Saver outreach team builds and maintains relationships with trade allies associated with the technologies in and around Duke Energy Ohio's service territory. Trade ally company names and contact information appear on the TA search tool located on the Smart Saver® website. This tool was designed to help customers who do not already work with a TA, to find someone in their location who can serve their needs.

Duke Energy Ohio continues to look for ways to engage the trade allies in promotion of the program, including the utilization of focus groups. Duke Energy Ohio developed a collateral tool kit to allow the use of the Smart Saver® logo along with white papers, case studies, and other types of collateral developed by Duke Energy Ohio. Originally, a tool kit was available for Variable Frequency Drives. Toolkits are now available for Lighting and HVAC. In 2013, Duke Energy Ohio offered co-funding to trade allies for approved marketing supplies and activities for promoting the Smart Saver program. Funds were available on a first come first serve basis. Duke Energy Ohio is continuing co-funding in 2015.

In 2014, Duke Energy Ohio partnered with trade allies to offer incentives at the point of sale. Product distributors will reduce the purchase price by the incentive amount to eligible Duke Energy Ohio customers during the purchase. Distributors will provide Duke Energy Ohio with the customer participation information at which time Duke Energy Ohio will reimburse the distributor for the amount of the incentive.

Duke Energy Ohio added two business energy advisors to focus on medium business customers with annual revenue between \$60,000 and \$250,000 annually.

Prescriptive incentives are also available through the Duke Energy Ohio Online Savings Store. The store allows Duke Energy Ohio commercial and industrial customers to purchase products eligible for Smart Saver incentives. The purchase price of the products is reduced by the amount of the incentive at the time of purchase. Products available on the store include: CFLs, LEDs, occupancy sensors, and programmable thermostats. Duke Energy Ohio promoted the store and product offerings via e-newsletters, emails, and through the Duke Energy Ohio website.

Duke Energy Ohio's website is a great source of program information. Customers and trade allies can visit the website and learn about the program, program benefits, search for participating vendors, ask questions on-line, and complete application forms. The website includes a video for programmable thermostats. An HVAC calculator is available in addition to the lighting and VFD calculators.

Duke continues to develop case studies and testimonials from customers who have participated in the program to be used to help promote the program – showing actual savings and benefits for each technology type.

Smart Saver[®] Non-Residential Prescriptive Program Potential Changes:

Standards continue to change and new, more efficient technologies continue to emerge in the market. The Company expects to continue to add new measures to provide incentives for customers to take advantage of a broader suite of products. The Company undertakes an annual review of technologies and efficiency levels through internal sources and with the assistance of outside technical experts. The review includes the existing technology categories as well as other emerging areas for energy efficiency.

Smart Saver® Custom Rebate Program

Duke Energy Ohio's Smart Saver® Nonresidential Custom Incentive Program offers financial assistance to qualifying commercial, industrial and institutional customers (that have not opted out) to enhance their ability to adopt and install cost-effective electrical energy efficiency projects.

The Smart Saver® Custom Incentive program is designed to meet the needs of Duke Energy Ohio customers with electrical energy saving projects involving more complicated or alternative technologies, or those measures not covered by standard Prescriptive Smart Saver® Incentives.

The Custom Incentive application is for projects that are not listed on the applications for Smart Saver® Prescriptive Incentives. Unlike the Prescriptive Incentives, Custom Incentives require approval prior to the customer's decision to implement the project. Proposed energy efficiency measures may be eligible for Custom Incentives if they clearly reduce electrical consumption and/or demand. There are two approaches for applying for Custom Incentives, Classic Custom and Custom to Go. Application documents vary slightly. The difference between the two approaches focuses on the method by which energy savings are calculated.

Currently there are the following application forms that are located on the Duke Energy Ohio website under the Smart Saver® Incentives (Business and Large Business tabs).

- Custom Application – Administrative Information
- Energy Savings Calculations & Basis
 - Classic Custom approach (> 700,000 kWh or no Applicable Custom to Go calculator)

- Variable Frequency Drives
- Energy Management Systems
- Compressed Air
- Lighting
- General
- Custom to Go Calculators (< 700,000 kWh and Applicable Custom to Go Calculator)
 - Energy Management Systems

The program is promoted through but not limited to the following;

- Trade ally outreach
- Duke Energy Ohio Business Relations Managers
- Duke Energy Ohio segment specific workshops
- Company website

Smart Saver® Custom Rebate Program Potential Changes:

In 2014, Duke Energy Ohio launched a user-friendly energy savings calculation tool for energy management systems (EMS) which is intended to streamline the application process and boost participation for small to medium sized EE projects. For 2015, Duke Energy Ohio is adding additional calculators to this suite, including HVAC, Lighting, VFDs, and Compressed Air. The entire suite is called “Custom-to-Go”. The Smart Saver Custom webpage has been updated to accommodate these additions. Additionally, the Custom Program is evaluating the application of a “flat rate” incentive rate value for Custom applications.

Furthermore, the Custom program continues to evaluate additional improvement to enhance participation and program efficiency.

Non-Residential Energy Assessments Program

The purpose of the Non-Residential Energy Assessment Program is to assist non-residential customers in assessing their energy usage and providing recommendations for more efficient use of energy. The program will also help identify those customers who could benefit from other Duke Energy Ohio Energy Efficiency non-residential programs.

Duke Energy Ohio offers two types of assessments to help customers identify energy efficiency opportunities. First, an Online Assessment tool is available for all non-residential customers through the Duke Energy Ohio website. This tool is available free of charge. Second, Duke Energy Ohio offers various types of On-Site Assessments wherein an assessor will spend one or more days at a customer's site identifying opportunities for increased energy efficiency. The various types of assessments include those defined by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (Level II and Level III) as well as assessments focused on specific market segments or systems (i.e. commercial real estate, data centers, hospitals, compressed air systems, and chilled water systems). After the audit is completed, the customer receives a written report of the audit findings as well as assistance applying for Smart \$aver Incentives if desired. The cost of the On-Site Assessment varies depending on the complexity, size of the facility, and length of time required. Customers determined eligible may receive financial assistance with a subsidy of up to 50% of the total assessments cost.

Impacts captured as a result of Energy Assessment recommendations are recorded in Duke Energy Ohio's non-residential incentive programs. As a result, they are not presented for this section.

Non-Residential Energy Assessment Program Potential Changes:

Duke Energy is considering an ancillary offer to be called Energy Design Assistance (EDA). Similar to the current assessment program, EDA would offer energy savings recommendations for non-residential customers. However, the focus would be assisting customers in new construction to ensure the most energy efficient structures are being built. As part of the service, Duke Energy would provide computer software energy modeling that would provide the capability for innumerable efficient building designs to be considered by the customer. Both Duke Energy and the customer would cost share for the service.

Mercantile Self-Direct Rebates Program

The Duke Energy Ohio Mercantile Self-Direct program was enacted in accordance with Public Utilities Commission of Ohio (Commission) Rule 4901:1-39-05(G).A.C., and the Commission's Opinion and Order in Case No. 10-834-EL-POR. Customers who use 700,000 kWh or greater annually and national accounts are eligible for the program.

These customers may elect to commit energy savings or demand reductions from projects completed in the prior three calendar years that did not receive Smart Saver[®] incentives to Duke Energy Ohio's benchmark achievements. In return, Duke Energy Ohio will assist the customer in filing an application with PUCO for approval of a portion of the incentive the customer would have received had they participated in Duke Energy Ohio's standard Smart Saver[®] Non-Residential programs.

Any customers that paid a reduced rider amount as the result of a negotiated settlement and wish to receive a Self-Direct rebate will be invoiced for the differential from the date of project completion until the last effective date of the negotiated settlement.

The marketing channels for Mercantile Self-Direct project applications closely resemble those of the Smart Saver[®] Prescriptive and Smart Saver[®] Custom programs, based on applicability, as described in previous sections of this filing.

Rebates for Self-Direct projects eligible for a cash rebate reasonable arrangement will be a maximum of 50% of the dollar amount that would apply to the same project if evaluated in the Smart Saver[®] Prescriptive & Custom programs.

Self Direct Prescriptive Program - The Self-Direct Prescriptive program provides rebates for mercantile customers who implement energy efficiency and/or demand reductions projects to install higher efficiency equipment. Major categories include lighting, motors, pumps, VFD's, food service, information technology, HVAC and process equipment. Eligible measures are reflective of the Smart Saver[®] Prescriptive Incentive portfolio. While many of the measures recorded under the Smart Saver[®] Prescriptive program will remain Prescriptive in nature under the Self-Direct program, in accordance with Commission rules and orders on the mercantile program, certain measures may be evaluated under the Self-Direct Custom program to enable the use of as-found baseline.

Self Direct Custom Program - The Self-Direct Custom program offers rebates for completed mercantile projects involving more complicated scopes, or unique technologies that resulted in improvements upon facility electrical energy efficiency. A proposed energy efficiency measure may be eligible for a Self-Direct Custom rebate if it clearly reduces electrical consumption and/or demand. Unlike the Smart Saver[®] Custom program, measurable and verifiable behavioral and operational measures are eligible in the Mercantile Self Direct program.

PowerShare® Program

The PowerShare® program is Duke Energy Ohio's demand side management (or demand response) program geared toward Commercial and Industrial customers. The primary offering under PowerShare® is named CallOption and it provides customers a variety of offers that are based on their willingness to shed load during times of peak system usage. These credits are received regardless of whether an event is called or not. Energy credits are also available for participation (shedding load) during curtailment events. The notice to curtail under these offers is between 90 minutes (emergency) and day-ahead (economic) and there are penalties for non-compliance during an event.

- The program is promoted through but not limited to the following:
 - Duke Energy Ohio Business Relations Managers
 - Email to customers
 - Duke Energy Ohio website

Customer targets in 2014 continued to be large manufacturers, water/wastewater facilities and school systems. The market is very competitive with other Curtailment Service Providers acquiring customers during 2014 that had previously been PowerShare® participants.

The largest change in 2014 is to move the contracts to "Summer Only" status for Emergency/Economic PowerShare® CallOption events (June 1 to September 30). This is to match the "Limited Demand Response" timeframe from PJM. Duke Energy Ohio will use PowerShare® QuoteOption to provide voluntary curtailment events for customers in the non-summer months.

PowerShare[®] Program Potential Changes:

For June 2015, PJM has changed the notification time for emergency events to 30 minutes before the customer must reach full curtailment level. However, PJM has created an exemption process for manufacturers who cannot curtail that quickly due to potential damage costs to equipment, product or feedstock. These customers may request that they be notified either 1 or 2 hours prior to an event. Duke Energy is working with customers and PJM to navigate through this change and to secure exemptions where appropriate.

PJM Pilot:

As agreed to by the signatory parties in the Stipulation and Recommendation for Case No. 13-0431-EL-POR, Duke Energy Ohio created a PJM Interconnection, Inc. (PJM) Pilot program capturing all the costs and benefits of PJM Reliability Pricing Model (RPM) participation. Duke Energy Ohio agreed to bid at least 80% of eligible⁴, projected cost effective⁵, approved Program Portfolio resources⁶ into the PJM Base Residual Auctions (BRA) occurring during the term of the 2014 – 2016 Program Portfolio. All cost effective, PJM approved MW resources were bid into the 2017/2018 BRA. This resulted in 59.2 MWs from Demand Response and 16.4 MWs from energy efficiency for a total of 75.6 MWs clearing in the 2017/2018 auction.

⁴ "Eligible" is defined for purposes for the Stipulation as existing and planned energy efficiency savings and demand response that comply with PJM Manuals 18 and 18b.

⁵ "Cost effective" is defined for purposes of Duke Energy Ohio's PJM Pilot Program as the projected auction revenues are greater than the projected costs for existing and planned energy efficiency and demand response, where the phrase "projected auction revenues" is defined as the estimated kW multiplied by the previous BRA clearing price for the Duke zone and "projected costs" are defined as the costs necessary to fully qualify and bid the resources into the PJM capacity auctions.

⁶ "Program Portfolio resources" is defined as the energy efficiency and demand response resources, both existing and planned, that are expected to be created under Duke's 2014 – 2016 Program Portfolio application in Case No. 13-0431-EL-POR. Program Portfolio resources specifically exclude mercantile self-direct resources, unless a self-direct mercantile customer affirmatively and explicitly chooses to grant its energy efficiency capacity resources to Duke Energy Ohio, by separate agreement.

Clearing MW revenue is allocated back to programs after all administrative and M&V costs are covered. Revenue offset is allocated back to program based on percentage of MWs clearing each auction and customer class.

Duke Energy Ohio continued to keep the Duke Energy Community Partnership (the Collaborative) updated throughout 2014 regarding the auction process.

4901:1-39-05(C)(2)(a)(i) Cont'd... Number and Type of Participants and Comparison of Forecasted Savings to Achieved Savings

The number of participants or measures installed by customer type is summarized above in Table 2. Details on participation by measure are provided in Appendix A.

A new portfolio filing seeking program approval for January 1, 2014 – December 31, 2016 was filed on April 15, 2013⁷ and approved on December 4, 2013. Table 4 provides a comparison of achieved impacts for 2014 as well as the forecasted impacts for 2015.

⁷ Case No. 13-0431-EL-POR

Table 4: Comparison of Achievement to Forecasted Impacts and Trend Projection Through 2015									
	2, 3	Achieved Load Impacts		Forecasted Load Impacts					
		MWH	MW	MWH	MWH	MWH	MW	MW	MW
		2014	2014	2014	2015	Total	2014	2015	Total
Other Programs									
Powershare Generators	1	0.0	(8.9)	0.0	0.0	0	0.0	0.0	0
Low Income Weatherization		701.3	0.2	0.0	0.0	0	0.0	0.0	0
Large Transmission Customer		0.0	(29.4)	0.0	0.0	0	0.0	0.0	0
Residential Programs									
Appliance Recycling Program	4	3,051.9	0.6	8,135.7	957.1	9,093	2.2	0.1	2
Home Energy Solutions		732.5	0.5	1,010.0	2,884.7	3,895	0.6	1.8	2
Low Income Neighborhood Program		1,351.3	0.4	1,261.8	1,261.8	2,524	0.3	0.3	1
Energy Efficiency Education Program for Schools		1,970.0	0.2	2,025.7	2,025.7	4,051	0.2	0.2	0
Home Energy Comparison Report		9,897.3	3.0	457.7	(860.2)	(403)	0.1	(0.3)	(0)
Low Income Services		0.0	0.0	107.9	107.3	215	0.0	0.0	0
Power Manager	4	0.0	2.3	0.0	0.0	0	4.5	7.5	12
Residential Energy Assessments	6	1,955.6	0.2	2,331.5	2,032.1	4,364	0.3	0.2	0
Smart Saver Residential		60,584.0	7.5	15,412.8	20,520.4	35,933	2.9	3.3	6
Weatherization Pilot		739.1	0.1	50.6	70.4	121	0.0	0.0	0
Non Residential Programs									
Smart Saver Non Residential Custom	5	22,346.0	2.3	28,027.3	24,428.2	52,455	3.2	2.8	6
Smart Saver Non Residential Prescriptive		41,432.0	8.6	55,055.7	64,441.1	119,497	10.7	12.3	23
Non Residential Energy Management Information System	4	0.0	0.0	1,974.1	0.0	1,974	0.4	0.0	0
PowerShare®		0.0	71.8	0.0	0.0	0	(0.4)	(30.1)	(31)
Home Energy Solutions - Demand Response		0.0	0.1	0.0	0.0	0	1.8	0.0	2
Mercantile Self-Direct		7,507.8	1.8	0.0	2,816.7	2,817	0.0	0.6	1
Small Business Energy Saver		0.0	0.0	0.0	17,071.2	17,071	0.0	2,461.6	2,462
Total for All Programs		152,269	61.4	115,851	137,757	253,607	27	2,460	2,487

1. Low Income Weatherization reflects 2014 incremental impacts.

2. 2014 forecasted impacts from the previous SB221 filing.

3. 2015 forecasted impacts have been updated with more recent estimates to align with updated projection filing.

4. HECR and DR are shown as incremental to be consistent with achievements.

5. Smart Saver Non Residential Prescriptive includes Process Equipment and Information Technology.

6. Smart Saver Residential includes Multi-Family Energy Efficiency.

This table indicates that the achieved MWH and MW impacts through 2014 are above the 2014 forecasted load impacts.

4901:1-39-05(C)(2)(a)(ii) Energy Savings Counted Toward Benchmark as a Result of Mercantile Customers

The energy savings counted towards the benchmark for 2014 as a result of energy efficiency improvements and implemented by mercantile customers and committed to the Company are 7,507.8 MWH.

4901:1-39-05(C)(2)(a)(iii) Peak Demand Reduction Counted Toward Benchmark as a Result of Mercantile Customers

The peak-demand reductions counted towards the benchmark for 2014 as a result of energy efficiency improvements and implemented by mercantile customers and committed to the Company are 1.8 MW.

4901:1-39-05(C)(2)(a)(iv) Peak-Demand Reductions Claimed Due to Transmission and Distribution Infrastructure Improvements

The Company is not claiming any impacts from transmission and distribution infrastructure improvements at this time.

4901:1-39-05(C)(2)(b) Evaluation, Measurement, and Verification (EM&V)

In its Order in Case Number 09-512-GE-UNC, July 31 2013, the Commission stated an intention to treat the 2010 Draft TRM and those comments agreed to by VEIC as a “safe harbor” rather than a mandate. As a result of this Commission direction Duke Energy Ohio has directed third-party evaluators to consider guidelines presented by the TRM in evaluations going forward into the 2015 program evaluation year. For the current compliance filing the independent EM&V was generally conducted consistent with the most current draft of the TRM. It should be noted however, that the TRM provides no specific methodologies for behavior programs or direct load control.

Energy savings and peak-demand reduction values are documented in the individual program EM&V studies in the appendices. The following studies have been completed:

Power Manager Impact Evaluation (May 30, 2014)	Appendix D
Power Manager Process Evaluation (June 16, 2014)	Appendix E
PowerShare Process and Impact Evaluation (July 16, 2014)	Appendix F

Appliance Recycling Program Process and Impact Evaluation (May 15, 2014)	Appendix G
Residential Smart Saver [®] HVAC Program Process Evaluation (May 16, 2014)	Appendix H

Appendix C provides an up-to-date summary EM&V methodologies and protocols.

The cost effectiveness of the current programs is provided below in Table 5.

Table 5	Program Cost Effectiveness Test Results**			
	Utility Test	TRC Test	RIM Test	Participant Test
RESIDENTIAL CUSTOMER PROGRAMS				
Appliance Recycling Program	5.06	6.98	2.40	NA
Energy Education Program for Schools	0.75	0.98	0.65	NA
Home Energy Solutions	1.37	1.93	1.26	4.31
Low Income Neighborhood	1.64	2.43	1.21	NA
Low Income Services	0.60	1.66	0.52	NA
My Home Energy Report	2.10	2.10	1.44	NA
Residential Energy Assessments	2.44	2.63	1.55	NA
Smart Saver® Residential	2.34	2.32	1.52	4.76
Power Manager	4.18	5.05	4.18	NA
NON-RESIDENTIAL CUSTOMER PROGRAMS				
Smart Saver® Non-Residential Custom	3.35	1.15	2.24	1.45
Smart Saver® Non-Residential Prescriptive	5.41	2.35	3.27	2.26
Power Share®	2.50	10.77	2.50	NA
NEW PROGRAM				
Small Business Energy Saver	3.12	2.51	2.34	2.78

**Cost Effectiveness is calculated on NPV for life of measure

4901:1-39-05(C)(2)(c) Continuation of Programs

Based on the success experienced and feedback from customers and trade allies, Duke Energy Ohio proposes continuing with the existing suite of offers as approved in Case No. 13-0431-EL-POR, the current portfolio. The portfolio is subject to annual adjustments for changes in efficiency levels or market conditions.

With respect to future program expansion or modification, the Company filed and received approval for a new non-residential program, Small Business Energy Saver⁸. The program will consist of a free energy assessment resulting in a customized proposal with improvement recommendations and eligible incentives provided upfront to offset the cost of measure installation, with the entire process managed by a program administrator.

⁸ Case No. 14-964-EL-POR

The Company also filed for a non-residential pilot, Smart Energy in Offices⁹. Smart Energy in Offices is a community engagement based program designed to increase the energy efficiency of targeted customers by engaging building occupants, tenants, property managers and facility teams with information, education, and data to drive behavior change and reduce energy consumption. The Company will launch the program in 2015 upon approval.

Within the portfolio, a non-residential pilot program, Energy Management and Information Services (EMIS), was approved. This program was filed within five Duke jurisdictions. Due to limited customer interest across all of its different jurisdictions, Duke Energy Ohio evaluated the pilot in order to determine if proceeding with a lower overall customer base than anticipated will allow the program to be cost-effective. The decision was made to terminate the pilot.

The Company is continually researching other energy efficiency opportunities for both the residential and non-residential customer classes.

Duke Energy Ohio's portfolio is approved through December 31, 2016. The procedural record in this case clearly establishes that within this approved Portfolio Plan the Company has the ability and will modify existing programs and add new programs for the purposes of responding to changing market conditions, meeting its customers' efficiency needs and allowing it to meet its annual energy efficiency benchmarks over the period.

The Company's portfolio plan, including its shared savings incentive mechanism, was approved incorporating the same banking principles that were established by the Commission's rules with respect to its energy efficiency benchmark compliance. As agreed to in its portfolio plan stipulation and approved by the Commission, the Company does not double count the net benefit of energy savings achieved in a particular year for the purposes of calculating the

⁹ Case No. 14-1575-EL-POR

incentive, and once energy savings are recognized in determining the Company's allowed shared savings percentage, the impacts are exhausted for the purpose of determining its annual incentive achievement level in the future.

The provisions of newly enacted Senate Bill 310, R.C. 4928.6616, Sections 6 and 7 contain provisions relating to the continuance of an existing portfolio. Pursuant to that statute, Duke Energy Ohio has notified the Commission of its election to continue with its existing portfolio plan and maintain its approved cost recovery and shared savings incentive mechanism through 2016.¹⁰

4901:1-39-05(D) Independent Program Evaluator Report

Appendix C, provides an up-to-date summary EM&V methodologies and protocols. Individual reports have been provided as appendices D through H.

4901:1-39-05 (E)(1) and (2)(a-b) Peak Demand Reductions

Duke Energy Ohio has satisfied its peak-demand reduction benchmarks through energy efficiency and peak-demand response programs implemented by the Company and programs implemented on mercantile customer sites where the mercantile program is committed to the electric utility.

4901:1-39-05(F) and (G)(1-5) Mercantile Customers

Duke Energy Ohio's Mercantile Self Direct program is the avenue through which mercantile customers commit energy and demand impacts from their energy efficiency projects to Duke Energy Ohio in exchange for cash rebates or commitment payments. The program uses

¹⁰ Case No. 14-1580-EL-RDR

the constructs for calculating and deeming energy and demand savings that are present in the Custom Incentive and Prescriptive Incentive programs, respectively.

Upon approval of the customer's application, Duke Energy Ohio tenders an offer letter agreement to the customer which outlines the cash rebate or commitment payment offered. After the customer signs the offer letter agreement, Duke Energy Ohio submits a mercantile application to the Commission on behalf of the customer. Upon Commission approval of the application or the passing of 60 days, Duke Energy Ohio remits payment to the customer for the agreed dollar amount.

The offer letter provided to applicants pursuant to each project submitted to Duke Energy Ohio requires the customer to affirm its intention to commit and integrate the energy efficiency projects listed in the offer into Duke Energy Ohio's peak demand reduction, demand response and/or energy efficiency programs. The offer letter agreement also requires the customer to agree to serve as joint applicant in any future filings necessary to secure approval of this arrangement as required by the Commission and to comply with any information and reporting requirements imposed by rule or as part of that approval. Noncompliance by the customer with the terms of the commitment is not applicable at this time.

The attached offer letter agreement template (Appendix I), used for each mercantile application (examples in Appendix J and Appendix K), provides for formal declaration. Additionally, the attached example application documents request that the applicant allow Duke Energy Ohio to share information only with vendors associated with program administration. The release is limited to use of the information contained within the application and other relevant data solely for the purposes of reviewing the application, providing a rebate offer, submitting documentation to the Commission for approval and payment of the rebate. All

program administration vendor contracts strictly prohibit the sharing of customer information for other purposes.

Upon customer request, Duke Energy Ohio will agree, as it is able to do so, to provide information to the Commission in the proper format such that confidential customer information is redacted from the public record.

With regard to the customers in Duke Energy's Ohio territory who have undertaken self-directed energy efficiency projects, these initiatives will not be evaluated by the Company's independent evaluation contactor (TecMarket Works). These efforts have been implemented in the past and were self-directed by our mercantile customers without involvement in Duke Energy Ohio's energy efficiency or demand reduction programs under Duke Energy Ohio's Shared Savings Cost Recovery mechanism. As a result they will not be included in the evaluations of Duke Energy Ohio programs.

As of December 31, 2014, two customers requested rider exemption in exchange for commitment of energy and demand savings to Duke Energy Ohio. One customer received approval in October 2014 for a 48 month ongoing exemption. The other received a pre-approval but their application cannot be approved until the project is complete sometime in 2015.

4901:1-39-05(H) Prohibition Against Counting Measures Required by Law Toward Meeting the Statutory Benchmark

Duke Energy Ohio did not count, in meeting its statutory benchmark, the adoption of measures that were required to comply with energy performance standards set by law or regulation, including but not limited to, those embodied in the Energy Independence and Security Act of 2007, or an applicable building code.

4901:1-39-05 (I) and (J) Benchmarks Not Reasonably Achievable

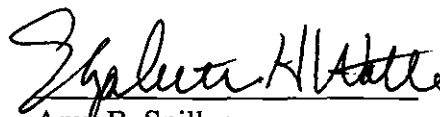
The above referenced sections do not apply to Duke Energy Ohio as it has met its statutory benchmarks.

III. Conclusion

With this status report, Duke Energy Ohio has demonstrated that it is in compliance with the statutory load impact requirements as measured and reported in its Benchmark Report. Duke Energy Ohio respectfully requests that the Commission find that the Company has met its compliance requirements for the 2014 compliance year.

Respectfully submitted,

DUKE ENERGY OHIO, INC.

A handwritten signature in black ink, appearing to read "Amy B. Spiller".

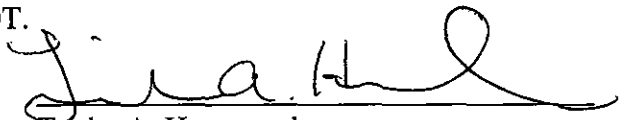
Amy B. Spiller
Deputy General Counsel
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139 E. Fourth Street Suite 1303
Cincinnati, Ohio 45202
(614) 222-1331

**AFFIDAVIT
OF
TRISHA A. HAEMMERLE**

COMES NOW Trisha A. Haemmerle being duly sworn, deposes and says:

1. My name is Trisha A. Haemmerle. I am employed by Duke Energy Business Services, Inc. as Senior Strategy and Collaboration Manager.
2. This Affidavit will be filed with the Ohio Public Utilities Commission in support of Duke Energy Ohio's Annual Energy Efficiency Portfolio Status Report (the Report) which is required by Ohio Administrative Code §4901:1-39-05(C).
3. As Senior Strategy and Collaboration Manager, I have responsibility for overseeing the demand side management regulatory requirements for Ohio. As part of my professional responsibilities I assisted with the underlying analysis and preparation of Duke Energy Ohio's Report.
4. The information contained within the Report is true and accurate to the best of my knowledge.
5. The performance detailed in the Report demonstrates that Duke Energy Ohio has complied with the statutory benchmarks contained in Ohio Revised Code 4928.66.

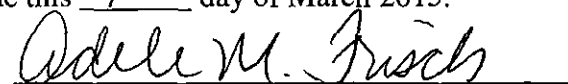
FURTHER AFFIANT SAITH NOT.


Trisha A. Haemmerle

State of Ohio)
) SS:
County of Hamilton)

Subscribed to and sworn to before me this 9TH day of March 2015.

ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2019


Notary Public

Final Report

**Process Evaluation of the
2013-2014 PowerShare® Program and
Impact Report for the 2013 PowerShare® Program in
Ohio**

**Prepared for
Duke Energy**

**139 East Fourth Street
Cincinnati, OH 45201**

July 16, 2014

Submitted by

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Executive Summary

Impact Evaluation Findings

TecMarket Works conducted a review of the analytical approach used by Duke Energy to estimate energy impacts from the Ohio PowerShare® program.

Duke Energy conducted the impact evaluation analysis, while Integral Analytics (a TecMarket Works' Subcontractor) reviewed the methodology and results.

From our review of Duke Energy's evaluation of the Duke Energy Ohio PowerShare® 2013 Program, the methodology employed, including the application used to estimate the load impacts, is very reasonable and defensible. Besides being innovative, the approach is thorough which should provide accurate estimates of Event impacts (i.e., for settlement with customers, impact results for an event, capability values, and P&L values).

In general, the model specifications in all the processes include key determinates of energy usage, which minimizes the likelihood of any bias in the results from omitted variables. One additional strength of the approach is that Duke Energy relies on an extensive history to estimate the model, rather than only a handful of days deemed to be similar (an approach used by many utilities which is less rigorous since it just compares average usages from a pre-event period). In addition, using a multivariate regression model in the Capabilities, P&L, and M&V processes is generally preferred over approaches that are based on average loads from a pre-event period.

The technical approach used by Duke Energy in developing settlement calculations for the customer day-ahead Pro forma load (PFL) and the M&V event impacts are detailed and very thoroughly developed. The use of multiple methods to determine the Best of Breed (BoB) in the PFL is noteworthy in that it assures that the most accurate approach will be used in developing the PFL – a step which, to the best of our knowledge, is not used by any other entity.

Finally, in the previous review of Duke Energy's analytical process for determining Capabilities and conducting M&V, Integral Analytics recommended that Duke Energy should review the need for each of the processes to see if they are truly required and look for ways to combine them. Since the last review, Integral Analytics has determined that Duke Energy has combined processes and, as a result, this issue has been resolved.

Summary of Process Evaluation Findings

The 2013-2014 PowerShare Ohio program is a legacy demand response program that recently faced a number of unusual challenges with unanticipated winter emergency events in early 2014 during the "Polar Vortex". These challenges posed difficulties both to Ohio customers and program staff, who had no recent experience with winter events. As a result of these difficulties, Duke Energy made a number of changes to their internal event protocol that will ensure a smoother response in the event of future winter events across all the PowerShare states in Duke Energy service territory.

While customer's general satisfaction with the PowerShare program and with Duke Energy, had decreased since 2011, they maintained their level of regard for each of the specific components of the PowerShare program. Because of this, the evaluation team concludes that it is likely that the memory of the recent winter emergency events during the Polar Vortex caused transitory dissatisfaction that was captured due to the timing of the process evaluation surveys. The fact that there was not increased dissatisfaction with core program components (such as the incentive levels, explanations of program requirements, and expertise of Duke Energy staff) suggests that the program design and execution were robust enough to handle even the winter events.

Recommendations Associated with Process Findings

While there are many findings describe in the text, there are two that warranted recommendations:

FINDING: While customers did not like having winter events, there were a few that suggested that Duke Energy should offer separate winter and summer PowerShare contracts. Also, despite the fact that customers were vocal about their dislike of the winter events, their satisfaction ratings with the program showed there were no specific program areas with which they had decreased satisfaction. This suggests that some customers may be reacting in part out of inexperience with winter events.

RECOMMENDATION: Duke Energy should not rule out offering winter contracts in the future. Duke Energy's decision to offer only summer contracts for PowerShare Ohio will undoubtedly make customers more relieved, but based on the absence of decreased satisfaction ratings with program specifics, this decision should be revisited in the future, perhaps by offering a winter-only contract to complement the summer-only contract. This will allow Duke Energy to continue to meet the needs of those customers for whom winter events do not cause a hardship.

Introduction and Purpose of Study

This document presents the evaluation report for Duke Energy's PowerShare® Program as it was managed and implemented in Ohio for program year 2013-2014.

The process evaluation covers 2013 through March 2014 (to include the winter events during early 2014). The evaluation was conducted by TecMarket Works with Carol Yin of Yinsight as a subcontractor. All surveys were conducted by TecMarket Works staff.

Duke Energy conducted the impact evaluation analysis for the 2013 program year, while Integral Analytics (a TecMarket Works' Subcontractor) reviewed the methodology and results.

Summary of the Evaluation

For the process evaluation, the evaluation team conducted in-depth interviews with three Duke Energy managers and program staff members at different levels of responsibility for the program. The evaluation team also conducted 15-minute interviews with 26 commercial and industrial customers who participated in the 2013-2014 PowerShare Ohio program.

The impact analysis of the 2013 PowerShare program was conducted by Duke Energy. The basic approach for determining the impacts, capabilities, and profit and loss (i.e., the MW values used for revenue recovery and P&L) involves combining actual weather data with hourly load data from all enrolled customers, collected for the previous month(s), as appropriate. A regression model is developed using the combined data to provide an estimate of what the load would have been for the customer, absent an event. This is compared to the actual customer load to determine the impacts from an event.

Evaluation Objectives

The process evaluation of the 2013-2014 PowerShare Ohio program has several purposes. First, this process evaluation is intended to help identify areas where the program may be improved, drawing upon the insights of Duke Energy staff across different divisions and upon the insights of a sample of participating customers. Second, this report will document program operations for future reference, including ways in which the program has addressed and overcome past program challenges.

The purpose of the impact evaluation is two-fold. The first objective is to summarize the actual kW and expected peak normal kW impacts determined by Duke Energy for 2013. The second objective is to determine if the approach used by Duke Energy in estimating these impacts as well as the capacity values are consistent with commonly accepted evaluation principles.

Researchable Issues

This participant survey addressed several research issues that were identified collaboratively by Duke Energy and the TecMarket Works team:

- Winter events: Did customers have a different ability to respond to winter versus summer events?

- Marketing: Are customers receiving all the information they need to make the decision of whether or not to participate? Do customers understand the incentive structure? Are there any improvements that could be made in the presentation of the program's benefits and requirements?
- Advance notice: Did customers value having advance notice of events?
- Notification system: Are there any other ways in which customers would prefer to be contacted?

Description of Program

PowerShare is a demand response program designed to reduce non-residential customers' energy use during periods of high energy prices or during periods when high energy usage would cause energy supplies across the transmission and distribution system to drop to near-critical levels. In both these situations, the PowerShare program allows Duke Energy to purchase capacity from their customers by paying their commercial and industrial customers to reduce their energy demand, thus increasing the available energy supply¹.

In Ohio, electricity customers are offered a choice of electric suppliers. Participation in the PowerShare emergency program is available to any customer, while participation in the PowerShare economic Call Option program is only available to customers who have Duke Energy as their electricity supplier. Due to the latter requirement, Duke Energy now only offers PowerShare Emergency to Ohio customers in 2013-2014.

PowerShare® is the brand name given to Duke Energy Ohio's (the Company) Peak Load Management Program (Rider PLM, Peak Load Management Program P.U.C.O. Electric No. 19, Sheet No. 87.3). A revised version of this Rider was accepted in PUCO Case No. 12-1682-EL-AIR. All information in this report refers to the Rider PLM. The PLM Program is voluntary and offers customers the opportunity to reduce their electric costs by managing their electric usage during the Company's peak load periods. Customers and the Company will enter into a service agreement under this Rider, specifying the terms and conditions under which the customer agrees to reduce usage.

There are three product options offered for PowerShare® - CallOption®, AutoDR, and QuoteOption®:

- CallOption®
 - A customer served under a CallOption® product agrees, upon notification by the Company, to reduce its demand.
 - Each time the Company exercises its option under the agreement, the Company will provide the customer a credit for the energy reduced.
 - There are two types of events.
 - Economic events are primarily implemented to capture savings for customers and not necessarily for reliability concerns². Participants are not required to curtail during economic events. However, if participants do not curtail, they must pay a market based price for the energy not curtailed. This is called "buy through energy."
 - Emergency events are implemented due to reliability concerns. Participants are required to curtail during emergency events. During PJM Interconnection, LLC (PJM)-declared emergency events, customers are not provided the option to buy through.
 - In addition to the energy credit, customers on the CallOption® will receive an option premium credit.

¹ The Ohio regulatory commission also makes a distinction between curtailment-based versus generation-based demand response programs, so Duke Energy manages these resources separately.

² In 2013-2014, the only customers that enrolled for economic events were the three AutoDR participants.

- For the 2013/14 PowerShare® program, there were three different enrollment choices for customers to select among, but most Ohio customers were only eligible for the Emergency-only option (CallOption 0/10). All three choices require curtailment availability for up to ten emergency events per PJM requirements for capacity participation. The number of economic events varies among the choices. Customers can select exposures of zero, five, or ten economic events.
- Only customers able to provide a minimum of 100 kW load response qualify for CallOption®. Aggregation of customer's accounts is permitted.
- Participants using an on-site generator as their load reduction method participate in emergency events only. These participants also were presented with a multi-year contract option in 2012.
- AutoDR
 - AutoDR is essentially the same program as CallOption 10/10 (i.e., 10/10 meaning 10 economic events and 10 emergency events). However, the implementation mechanism is very different. For CallOption programs an automated messaging system contacts customers to notify them of an event. AutoDR could be classified as a direct load control program because implementation is controlled through messages sent directly to the participant's energy management system (EMS). These messages adjust the EMS settings to accomplish the load reduction enrolled. In 2013-2014, there were three commercial building customers that participated in AutoDR.
 - Load impacts for this program are calculated exactly the same as the CallOption programs.
- QuoteOption®
 - Under the QuoteOption® products, the Company may notify the customer of a QuoteOption® event and provide a Price Quote to the customer for each event hour. In 2013-2014, no Ohio customers participated in QuoteOption.
 - The customer will decide whether to reduce demand during the event period. If they decide to do so, the customer will notify the Company and provide an estimate of the customer's projected load reduction.
 - Each time the Company exercises the option, the Company will provide the participating customer who reduces load an energy credit.
 - There is no option premium for the QuoteOption® product since customer load reductions are voluntary.
 - Only customers able to provide a minimum of 100 kW load response qualify for QuoteOption®.
- Other
 - Note that another large commercial and industrial demand response program is offered in Ohio. This program is called the Ohio Transmission Voltage Demand Response Program. Details of this program are not included in this report.

PowerShare® 2013 Participation Summary

The PowerShare program has an annual enrollment for participation. This report covers the participation year of 2013. However, customers enroll for 1 year periods from June through May. Therefore, the set of customers participating in PowerShare from January through May, 2013, could differ from the set of customers enrolled from June through December, 2013. Under normal circumstances, Duke Energy Ohio is a summer peaking utility and therefore, the most relevant participation period is the summer months of June through September and the impact analysis concentrates on those months.

The table below compares account participation levels for summer 2012 and summer 2013, as well as MWs enrolled in the program. The MW values are Duke Energy Ohio's estimate of the load reduction capability across the summer. Additional information is presented below on the different calculations performed for the program including summer load reduction capability (LRC), P&L revenue recovery values, Measurement & Verification (M&V) values, and day-ahead projected load reduction (PFLs).

Table 1. 2013 PowerShare Participation Update

Ohio PowerShare Participation Update					
Enrolled Customers					
CallOption®			QuoteOption®		
2012	2013	Change	2012	2013	Change
52	48	-4	0	0	0
Summer Curtailment Capability (MWs)*					
CallOption®			QuoteOption®		
2012	2013	Change	2012	2013	Change
65.3	46.3	-19	0	0	0
*Capability for QuoteOption® is 80% of customer estimated load curtailment.					
Numbers reported are adjusted for losses.					

(Note that Duke Energy Ohio also registers Demand Response (DR), with PJM Interconnection, LLC. The values calculated by PJM for registered capacity do not necessarily match the values above since PJM follows a separate calculation process. These values are not documented here. The CallOption values above include AutoDR participants.)

PowerShare® 2013 Program Activity

During the summer of 2013, there were 3 CallOption® economic events and 0 QuoteOption® events. There were no CallOption® emergency events but there were 2 CallOption PJM test events on 8/28 and 9/24. These events are required by PJM and each lasted 1 hour. The second

event was only for those customers who did not comply with their load reduction amounts during the first event. Table 2 below summarizes event participation.³

Table 2. 2013 PowerShare Measurement & Verification (M&V) Event Load Reductions

Date	Hour Ending EDT	PowerShare 0/10*	PowerShare 5/10*	PowerShare 10/10*	Total (MW)
7/17/2013	15			2.4	2.4
7/17/2013	16			1.7	1.7
7/17/2013	17			1.4	1.4
7/17/2013	18			1.4	1.4
7/18/2013	15			1.8	1.8
7/18/2013	16			1.1	1.1
7/18/2013	17			1.1	1.1
7/18/2013	18			1.1	1.1
8/28/2013	16	56.7 (test)		1.8	58.5
9/11/2013	15			2.0	2.0
9/11/2013	16			1.7	1.7
9/11/2013	17			1.4	1.4
9/11/2013	18			1.1	1.1
9/24/2013	17	7.2 (test)			7.2

*0/10 = 0 exposure to economic events, 10 possible emergency events

5/10 = 5 possible economic events, 10 possible emergency events

10/10 = 10 possible economic events, 10 possible emergency events

³ “PowerShare® CallOption® participants are presented with the option to “buy-through” economic events since system reliability is not a concern during economic events. For energy consumed under this buy-through option, customers pay a market based price for energy. Buy-through is not available during emergency events. Also note that there were 0 CallOption and 3 AutoDR customers enrolled in summer 2013 for economic events. All other participants were enrolled for emergency events only.”

Methodology

Overview of the Evaluation Approach

The process evaluation for the PowerShare program was conducted by TecMarket Works. The results presented in this report include management interviews and participant surveys.

The impact analysis for the PowerShare programs was conducted by Duke Energy staff. The results presented in this report include a review by Integral Analytics of the impact evaluation methodology and results. This can be found under the *Review of Impact Evaluation Approach* section later in this report.

Management Interviews

TecMarket Works and Yinsight developed the interview protocol for the PowerShare Program management that was implemented in January of 2014. The full interview guide can be found in *Appendix A: Management Interview Protocol*.

Hour-long management interviews were conducted with a Duke Energy product and services manager for PowerShare in the Midwest, the lead product and services manager for all of Duke Energy's demand response programs in the Midwest, and an account manager serving Ohio customers.

Participant Interviews

TecMarket Works and Yinsight developed a customer survey for the PowerShare Program participants. The survey can be found in *Appendix B: Participant Survey Protocol*.

Data collection methods, sample sizes, and sampling methodology

- Data collection method: Questionnaires were administered via short telephone interviews with the contact person identified to receive PowerShare alerts on behalf of the company.
- Sample sizes: The evaluation team attempted a census.
- Sampling methodology: The evaluation team attempted interviews with a census of the 42 current PowerShare Ohio participants for the 2013-2014 program year. Twenty-six interviews were completed by phone between 3/10/14 – 3/18/14

These 26 companies comprise 13 manufacturers, 5 schools, three water treatment plants, with the rest being sole representatives of assorted non-manufacturing sectors. Nine of these respondents also managed more than one site that participates in PowerShare. On average, these companies have participated in PowerShare Ohio for over three years. All companies interviewed were participants of the emergency-only option (CallOption 0/10), but were not enrolled in the economic nor voluntary options.

Number of completes and sample disposition for each data collection effort

For the process evaluation, the evaluation team conducted in-depth interviews with three Duke Energy product managers and program staff members at different levels of responsibility for the

program. The evaluation team also conducted 15-minute interviews with 26 commercial and industrial customers who participated in the 2013-2014 PowerShare Ohio program.

Expected and achieved precision

The sample is representative of the PowerShare population and is designed to target at 10% relative precision at 90% confidence level.

Description of baseline assumptions, methods and data sources

Not applicable.

Description of measures and selection of methods by measure(s) or market(s)

Not applicable.

Use of TRM values and explanation if TRM values not used

Not applicable.

Threats to validity, sources of bias and how those were addressed

No causal relationships were being investigated, so threats to validity were not a concern. Participants may have exhibited the social desirability bias when answering a question relating to the customer's main motive for participating in the PowerShare program, and when answering questions about satisfaction with the PowerShare program. To counter this bias, these questions used neutral language wherever possible. When probing customer's motivations for participating, customers were probed for additional motivations so that socially desirable biases would hopefully only affect one response, if at all.

Impact Evaluation

DR Analytics Calculations and Methodology

Duke Energy Ohio operates within the PJM Regional Transmission Organization (RTO) and has operational reporting requirements to both PJM and to the State of Ohio. Due to the unique reporting requirements of each, as well as the timing of reporting requirements, Duke Energy Ohio is required to calculate several related, yet unique Powershare values, for the purposes of planning, forecasting, reconciling, reporting on event activity, and carrying out the day-to-day operational activities associated with operating PowerShare. These calculation efforts can be grouped into two distinct categories, serving different purposes. They include:

- Hourly Event Day Impact Estimates
 - Pro-forma Load Estimations (PFLs) – Estimates of program participant's hourly electric consumption for the next day. These baseline projections are used to determine potential load reduction for a potential PowerShare event for the next day.
 - Measurement and Verification Load Reduction Estimates (M&V) – estimates of actual load reduction provided by each participant on an event day.
- Peak Available Load Reduction Estimates
 - Load Reduction Capability (LRC) – estimates of load reduction under peak normal weather conditions, if applicable, over a specified period of time such as a month or the entire summer for participants during the period of time in question.
 - Revenue Recovery Load Reduction Estimates (P&L) – estimates of summer load reduction under peak normal weather conditions, if applicable, for all participants enrolled in the program during the calendar year.

Pro-forma Load Estimations (PFLs)

The PFL calculations are projected values used in PowerShare operations efforts and are utilized to calculate estimated baseline loads for potential event participant load reductions. The PFL results are not only used for program participant event settlement calculations, but are also the basis for customer load reduction decisions, internal operational reports for the system operator, load availability projections, summer curtailment projections for state level planning, and overall event load reduction analysis.

The estimation of the PFL involves using five different estimation approaches:

- Hourly regression,
- PJM average method,
- MISO average method,
- Last two days average, and a

- Hybrid method.

A summary of each approach is presented below.

Hourly Regression

In this method, hourly energy is regressed on a set of Fourier variables, weather variables, and monthly dummies (if appropriate). An autoregressive (AR) process is fit to the error terms. The same model is re-fit except that weather variables are excluded. Then an F-test is performed to see if weather is a significant explanatory factor and the appropriate model results are used for further calculations.

PJM Method

This method is based on the default method PJM uses to calculate customer baseline loads (CBLs) for event settlements with the PJM RTO. It calculates an average load shape based on the high 4 of 5 days selected by the method. Those 5 days are selected from a 45 day window of days. Only non-NERC holiday weekdays, and non-event days are considered. The initial set of days is the most recent 5 days in the window. If the average usage on any day in the 5 days over the exposure hours is less than 25% of the average for all 5 days over the exposure hours, that day is dropped and a replacement selected. This loop is repeated until there are 5 days which meet the above 25% condition. The 4 days with the highest usage are selected from this group and the average load shape is calculated using those 4 days.

MISO Method

The MISO method is similar to the PJM method. The differences are the MISO method uses 10 days, there are no exclusions for low usage and all 10 days are used to calculate the load shape.

Last Two Days Method

For this method, the load shape is calculated based upon the most recent past two non-NERC holiday and non-event day weekdays.

Hybrid Method

This method first performs a regression of the daily energy usage for a customer. The explanatory variables are binary variables for day of the week, a daily weather variable, monthly dummies (if appropriate) and interactions between the weather variables and binary variables. The model is fit using an AR(7) process. As with the hourly regression, the model is re-fit without the weather variables and an F-test performed to determine the appropriate model. Once the predicted daily energy has been determined it is spread over the hours of the day using the load shape from the PJM method after that load shape has been normalized by the total energy under the shape.

Best-of-Breed (BoB)

For each customer, the "best" method is chosen to produce the final day-ahead baseline estimates. This is done by comparing the predicted load from each method to the actual load for the five days that went into the PJM method at an hourly, daily, and total level. Specifically:

- For the hourly value, the absolute value of each hourly difference between the predicted

- and actual load is summed across all five days.
- For the daily value, the difference for each hour is summed for each day, then the absolute value is summed across the five days.
- For the total the difference in each hour for all five days is calculated for all five days, then summed and the absolute value is taken.

The best method is chosen based on each method's relative performance of these differences. If a method is the best for at least two values, then the PFL from that method is used. Otherwise, the PFL from the method which produced the lowest hourly variance is used.

Measurement and Verification Load Reduction Estimates (M&V)

The steps involved in the calculation of the monthly Load Reduction Capability (LRC), P&L, and M&V are all similar and the underlying regression methodology is the same. However, each process has a specific purpose which makes the use of each unique. In addition, for PowerShare Quote Option, the Capability and P&L processes are not performed since they are not relevant to the program. For the M&V process for PowerShare CallOption and for PowerShare Quote Option, hourly load data from all enrolled customers is collected for a particular month.

The customer meter data is combined with the actual weather for that month. Regression models (one with and one without weather terms) are developed using the combined data similar to the hourly regression model discussed in the day-ahead PFL calculations discussed above. Specifically, the regression equation relates the customer's hourly electricity load to:

- A Fourier transform of hour of the day
- A Fourier transform of hour of the week
- A Fourier transform of hour of the month
- Temperature Humidity Index
- Binary variables for holidays and quiet periods, if appropriate
- Interactions between the Fourier transforms and the other variables

An F-test is calculated for each customer to determine if weather is a significant explanatory variable (unless weather is explicitly excluded for customers known not to be weather sensitive). If so, then the estimated parameters are used to create predicted loads using actual weather conditions on the event days. Thus, the baselines from the M&V process are representative of the actual load the customer would have consumed absent an event. These baselines from event days are then used with actual load data from the event hours and a load reduction is calculated.

All event results are reviewed by DSM Analytics. If regression results are clearly not representative of a specific participants load absent the event, an adjustment to the baseline may be applied. In addition, small variances around the baseline expected from typical model variance, above and below, are set to zero and therefore not considered load reduction.

M&V results are shown in Table 2 on page 10. Note that the PFL event load reduction estimates are used for settlement with customers due to their faster availability and the fact that the baselines are delivered to the customer for load reduction decisions. However, M&V load

reduction estimates are Duke Energy's best estimate of the load reduction impacts and these impacts are used for regulatory reporting purposes.

Load Reduction Capability (LRC)

Similar to the M&V process described above, LRC is calculated on a monthly basis for PowerShare CallOption. The regression methodology is the same as the M&V regression described above. The differences between the M&V process and the LRC process are:

- A. Once the regression equation is specified as described in the *Measurement and Verification Load Reduction Estimates (M&V)* section, the estimated parameters are used to create predicted loads using peak normal weather conditions for all days of the month, if weather is applicable. Thus, the baselines from the LRC process are representative of the peak normalized load the customer would have consumed throughout the month.
- B. The weekday, non-holiday baselines are then used with the customer's specified fixed reduction amount or firm load level to calculate the load reduction available each hour. By hour, these values are averaged across the month.

Monthly LRC by participant is typically not of interest for most reporting purposes. Given that Duke Energy Ohio (DEO) is a summer peaking utility, primary interest is the summer LRC calculation. PJM concentrates on this same period of time through their Peak Load Contribution process, a report that is required by PJM. This process is not described or emphasized in this report. Therefore, by hour and by participant, a weighted average of the summer monthly LRC values is calculated. Then, by participant, the hourly values for hours ending (HE) Eastern Daylight Time (EDT) 15 through 18 are captured in a calculation to determine the summer LRC of each participant. For firm level (customers whose contract states they will reduce load to a designated level) participants, these 4 values are averaged. For fixed reduction (customers whose contract states they will reduce a fixed amount, e.g. 1 MW) participants, the minimum of the four values is used. Summing across all participants provides the Summer LRC of the program.

Revenue Recovery Load Reduction Estimates (P&L)

The P&L process uses the Summer LRC as an input. This process is designed to use the Summer LRC value to calculate the amount of load reduction enrolled in the PowerShare CallOption program during each month of 2013 that the program is active. Since PowerShare CallOption is a year round program, an enrolled load reduction value is calculated for every month in 2013. Note however that the calendar year of 2013 encompasses two distinct participation periods; notably, the 2012/2013 PowerShare CallOption program year and the 2013/2014 PowerShare CallOption program year. As described above, the 2012/2013 program year lasted until the end of May, 2013. Summer LRC values from the 2012/2013 program year are used for those customers enrolled each month through May. The Summer of 2013 LRC values are used for those customers enrolled from June through December.

It is rare that a program participant would not start their participation on June 1, or they may not participate through May 31. When this does occur, the Summer LRC value for the participant is revised for P&L purposes to reflect only the data available from the customer's summer participation period. Summing the appropriate LRC value for the participants in each month provides the monthly P&L values.

These monthly values are delivered to Product Analytics for final calculations of the P&L results. Accounting adjustments are made as needed. An example of this would be the elimination of all participation through the use of diesel generators. These participants are not included in the incentive structure for PowerShare in Ohio. A loss factor is applied to the "at the meter" data delivered. Then, as appropriate, an average is taken of the 12 monthly values to arrive at the final P&L annual value.

Summary

As discussed above, each calculation PFL, M&V, LRC, and P&L has a specific purpose. Primarily, PFLs are used for customer settlements for event incentives and operational projections of load reduction available for the following day. M&V is used for regulatory and internal reporting of load reduction from events. LRC is used for reporting of load reduction available during each monthly period and as input to the P&L calculations. P&L is used for revenue recovery requests. For Duke Energy Ohio PowerShare CallOption and AutoDR, the LRC and P&L values including adjustments for line losses for 2013 are provided in Table 3 below.

Table 3. 2013 LRC and P&L Results

Program	2013 Summer LRC (MWs)	2013 P&L (MWs)
PS CallOption 0/10	44.9	36.1
PS CallOption 5/10	0.0	0.0
PS CallOption 10/10	0.0	1.8
PS AutoDR	1.4	*
Total PowerShare CallOption	46.3	37.9

**AutoDR P&L value included in PS CallOption 10/10 P&L value.*

Evaluation Findings

Review of Impact Evaluation Approach

Integral Analytics reviewed the analysis as well as information contained in the files covering participation and impacts.

From our review of Duke Energy's evaluation of the Duke Energy Ohio PowerShare® Program, the methodology employed as well as the application used to estimate the load impacts are very reasonable and defensible. The technical approach used by Duke Energy in developing the event impacts are very well thought out and developed. Besides being innovative, the approach is thorough which should provide accurate estimates of Event impacts (i.e., for settlement with customers, impact results for an event, capability values, and P&L values).

In general, the model specifications in all the processes include key determinates of energy usage, which minimizes the likelihood of any bias in the results from omitted variables. One additional strength of the approach is that Duke Energy relies on an extensive history to estimate the model, rather than only a handful of days deemed to be similar (an approach used by many utilities which is less rigorous since it just compares average usages from a pre-event period). In addition, using a multivariate regression model in the Capabilities, P&L, and M&V processes is generally preferred over approaches that are based on average loads from a pre-event period.

In the previous review of Duke Energy's analytical process, Integral Analytics questioned the need for Duke Energy to employ multiple processes. Integral Analytics recommended that Duke Energy should review the need for each of the processes to see if they are truly required and to look for ways to combine them. Since the last review, Integral Analytics has determined that Duke Energy has combined processes and, as a result, this issue has been resolved.

Overall, based on our review, Duke Energy's impact evaluation is a very complete and innovative approach, and it should result in accurate estimates of event impacts.

Process Evaluation

PowerShare Program Objectives

Duke Energy's PowerShare Ohio in 2013-2014 was offered as an Emergency Only program in the PJM energy market⁴. The PowerShare Ohio demand response program provides a capacity premium for commercial and industrial participants who are willing to shed load during an emergency event, and who have at least 100 kW of curtailable load.

PowerShare allows Duke customers to earn a premium for helping to increase the reliability of the electricity transmission and distribution system, and to mitigate risk of blackouts.

PowerShare Background

In 2012, Duke Energy Ohio migrated from the MISO (Midwest Independent Transmission System Operator) energy market to the PJM energy market. In order to participate in the emergency-only demand response program, Duke Energy customers were required to be able to shed load with two hours advance notice, as opposed to the 6 hours advance notice that MISO required. In addition, PJM required participants to be willing to be exposed to 10 emergency events, as opposed to the 5 that MISO required. In anticipation of these changes, Duke Energy began acclimatizing customers to these new requirements a year in advance of the migration.

However, emergency events were rarely called by MISO, and in 2012-2013, participants were only asked to shed load during a test event. The program manager reports that the PowerShare Ohio program did not have any changes between the 2012-2013 and 2013-2014 program years, other than the discontinuation of the CallOption economic option due to low enrollment⁵.

PowerShare Operations

Incentives

Duke Energy pays an annual capacity premium depending on the number of events and the curtailment capacity to which a customer commits. This capacity premium is paid over 12 months and shows up as a line item labeled "PowerShare credit" on the customer's monthly bill. If customers respond to an event call by curtailing, they are paid an additional event incentive credited to their monthly bill after settlement. For 2013-2014, customers on the Emergency-only PowerShare option were given a \$15/kW/Year incentive to participate. For each event in which they participate, they were also given a \$0.04/kW credit based on their option load.

Penalties. Customers who do not curtail load are assessed a penalty and lose the monthly premium credit as well. These companies may also be removed from the program. As an account manager reports, *"It's a big deal if they choose not to participate. A customer, did that [by missing the annual curtailment test event], and was removed from the program."*

⁴ PowerShare OH has three customers who been participating in the Economic program. These customers were all in commercial buildings that were able to reduce their air conditioning load as part of an Automatic Demand Response pilot with Honeywell. These customers were not called during the winter events in Ohio.

⁵ Although Duke Energy's website and the PowerShare Ohio marketing brochure for 2013-2014 still advertised the economic option, all of Ohio's large business customers (with the exception of the three AutoDR participants) were Retail Choice customers and therefore not eligible.

Targeted Load Commitment. Customers can choose to reduce energy to a firm load level or by a fixed amount, against their proforma baseline. A firm level reduction commitment is a commitment to reduce down to a specific kW usage (e.g. customers may commit to reduce energy usage to a firm level of 600 kW or below). A fixed level reduction commitment is a commitment to reduce a certain kW relative to the customer's load shape (e.g. customers may commit to reducing energy usage by a fixed 400 kW, against their proforma). The proforma baseline load shape is calculated based upon past energy usage.

An account manager explains that some customers have difficulty understanding how the proforma baseline is calculated. For example, PJM requires the customer's Peak Load Contribution (PLC) to be calculated using their load on the five peak heat days the previous year. However, depending on the load, the customer's monthly premium credit may change from year to year, which sometimes appears as if Duke had decreased the premium.

Marketing

PowerShare is marketed mainly by Duke Energy account managers to their large commercial and industrial customers. Marketing collateral is available on the Duke Energy website. In 2014, Duke Energy also launched a small marketing effort to enroll the previously untapped small and medium business customer segment.

Website and Brochure. Duke Energy provides a website with a downloadable brochure about the PowerShare program. Interested customers are directed to contact their account representative, or, email Duke Energy's customer account services, at the provided email address.

Marketing to Large Business Customers. Duke Energy account managers take the lead role in PowerShare marketing efforts. In the Midwest states, marketing for PowerShare starts with training of account managers in October and enrollment by mid-January.

The account managers help the customers determine whether or not PowerShare is appropriate for their company. An account manager reports that there is regular communication with the customer about the suitability of the program for their company's particular business, but that *"They are trying to get a product out the door, that's their main focus, not on trying to reduce load to help us out."*

An account manager says that it is clear that the event credit only constitutes a small percentage of the PowerShare incentive, much less than the monthly premium credit. Customers are told, *"the value of [having your company participate] is really in the option, you need to be able to be there and you need to be able to respond."*

The account managers also discuss with the customers the specifics of what they will do at their facility to reduce the requisite load, and note this in the customer's PowerShare contract. Account managers generally will also explain the history of the program and share the PowerShare brochure that is available on the website, along with a matrix showing program requirements. See Figure 1 below.

PowerShare Reference and Comparison Chart			
	CallOption Economic	CallOption Emergency	QuoteOption
Program Description	Customer may elect to curtail load to a contracted Firm Demand level or to the Proforma less Fixed Demand Reduction level during any Curtailment Period.	Customer agrees to curtail load to a contracted Firm Demand level or to the Proforma less Fixed Demand Reduction level during all Curtailment Periods.	By electing to participate in a Curtailment Event, a customer will receive credits by curtailing load to a Fixed Demand reduction below the Proforma load level.
Contract Term	1 year		1 year with automatic 1-year renewals.
Curtailment Minimums	Curtail a minimum of 100 kW		
Monthly Capacity/ Premium Credit Rate	PS-0/10 \$15 / kW / Year PS-5/10 \$21 / kW / Year PS-10/10 \$28 / kW / Year PS-0/10 GEN \$9 / kW / Year - 1-year term		\$0
Reason for Curtailment	For Duke Energy capacity constraints or mutual economic opportunities.	For PJM capacity constraints only.	For Duke Energy capacity constraints or mutual economic opportunities.
Max Number of Curtailment Periods	PS-0/10 0 events PS-5/10 5 events PS-10/10 10 events	PS-0/10 10 events PS-5/10 10 events PS-10/10 10 events	At Duke Energy's discretion.
Max Number of Curtailment Periods	PS-0/10 GEN – 1-year term – 0 events	PS-0/10 GEN – 1-year term – 10 events	None
Curtailment Period Times	Any non-holiday weekday. Summer: 1 p.m. - 7 p.m. Non-summer: any period up to six hours.	Any day, any time. Limited to six hours per day.	Any day, any time.
Curtailment Period Notification Procedures	Notification sent one day in advance using office phone, cellphone, email and fax.	Advanced notification sent using office phone, cellphone, email and fax.	Invitations sent morning of the event using office phone, cellphone, email and fax.
Penalty or Buy-through Charges	Buy-through	Penalty	None

Figure 1. 2013-2014 PowerShare OH Reference and Comparison Chart (from Duke Energy's PowerShare brochure)

One account manager mentioned that the normal sales cycle for PowerShare meant that most of the program outreach was conducted between October and January prior to the summer season. However sometimes customers are not available to meet during that time. This account manager suggested that there are still some companies that can be signed outside of that time frame, if they could determine what the premium would be for the following event season. The premium offered to customers depends upon PJM market prices, and can not be predicted for the following season.

Customer Awareness of PowerShare. Findings from the participant survey showed that over half of the respondents (16 of 26) first heard about the PowerShare program through a Duke

Energy representative. Four others learned about it through colleagues, two learned through Duke Energy events, and one each learned through word of mouth and the Duke Energy website. Respondents found the information very useful, rating the information of 8.76 (S.D.=1.33) on a scale of 1 ("Almost nothing I needed") to 10 ("Everything I needed"). Respondents also reported that they sought out additional of information after the initial introduction (usually from their Duke Energy representative), in order to get more details about their load history, program benefits, and their feasibility to curtail load. One participant also wanted to find out information about air quality regulations. All but one reported they were successful in obtaining the additional information.

Marketing to Small and Medium Business Customers. In OH, PowerShare has started a small-scale marketing effort conducted by internal staff to reach unassigned customers. The program manager expects this to yield about 1 – 2 MW, because the unassigned customers are likely to only have 100-200 kW of capacity to offer. These marketing efforts are expected to take place late winter/ early spring, and to cover other non-residential programs that normally rely on mass marketing to the unassigned customers.

Customer Motivation

The account manager says that the program is well-liked by the participants: *"My customers like that they are doing something to help and that they are getting nice premium for participation in this program."*

In the participant survey, respondents reported that their company's primary reason for participating in PowerShare was financial, cited by 18 of the 25 respondents. Of the remaining six, three cited reasons concerning support for their community (*"We're trying to be a good corporate citizen, which is one of our main company goals and objectives."*) and three more said they wanted to help avoid outages and brownouts. One respondent admitted that their primary reason for participating was *"We thought there would be very little risk of an emergency event even occurring, much less in winter."* When prompted for a secondary reason, six of the 26 cited supporting the community, two said they had corporate sustainability goals, three said they wanted to help avoid outages, and four (who had not done so before) said they participated for the financial incentive. From the variety of reasons given, it seems that these respondents have a fairly good grasp of the non-financial benefits of participating in an emergency demand response program.

Enrollment and Renewal

Once a customer has agreed to enroll, the account manager enters the terms of the contract, including the targeted load, into Duke Energy's customer database. Using that information a contract is then created that can be mailed or emailed to the customer for their signature.

In Ohio, marketing and outreach is conducted in coordination across the Midwest service territories, primarily in the fall, towards a January deadline. A product manager reports that one reason for this timeline is to allow account managers enough time to conduct outreach for Duke Energy's other customer programs, rather than conducting PowerShare outreach for six months out of the year.

In Ohio, Duke Energy offered an early signing bonus of \$1/kW for the 2013-2014 agreements. By obtaining contracts early, Duke Energy is able to bid capacity resources into the PJM capacity market. The program manager reports that this helps Duke Energy obtain more money from PJM, benefitting PowerShare participants that sign early as well as Duke Energy. An account manager adds that the bonus helps from a sales perspective: *"It's good to have a carrot, it helps move things along, so that we are getting things done and not dragging things out. The bonus gives it a higher priority."*

At the time of these interviews in late January of 2014, the program manager reports they had only reached half of their goal for early enrollments, whereas last year at the same time they had reached 90% of their goal. The program manager reports that while the winter events may have affected the early enrollment numbers, customers may have also chosen a competing energy supplier.

During the participant surveys, respondents were asked about the appeal of the early renewal bonus. Of the 21 respondents, 14 did renew early, and 7 did not. When asked why they did not renew early, one said it was an upper management decision. Two companies said they were on a three-year contract, but four reported that they were discontinuing their participating in PowerShare. Of these four, two companies chose to participate in another curtailment service provider's program, with one saying that their decision was due in part to the winter events: *"...we were surprised at any events occurring, much less in the winter... Just last week, we had an event and ... if it could happen under these conditions, we need another program."*

Another of the four had to discontinue because they would otherwise be in violation of new EPA regulations. The last respondent reported that they have continued to have difficulty aligning the their internal load profile with the one calculated by Duke Energy, and will instead reduce load internally when necessary. This last respondent suggested that one thing that Duke Energy could have is *"a clear, concise program that helps the customer to understand how the load reduction is calculated, so that we can meet expectations. It would also be good to have the profile information sooner for evaluation purposes, to decide whether or not to participate."*

These findings will not surprise the PowerShare program staff, who are already aware that many PowerShare participants were caught by surprise by the winter events.

Concerns during enrollment. In the participant surveys, respondents were asked what their concerns were during the time their companies were deciding to enroll. They had a number of varying concerns. The most frequent concern (as reported by 7 of 21 respondents) was that they would not be able to meet their commitment, and be penalized. Another 5 companies were concerned that events would interrupt production. Four others were most concerned about air quality and comfort for their customers. The remainder each had different concerns, including how the events would be communicated to key staff, the frequency of the events, the incentive amount, EPA regulations, and for one customer, simple unfamiliarity with PowerShare.

The respondents were asked whether their experience during the past event season decreased any of their concerns. Only about a quarter (7 of 26) said their concerns were decreased, and for the most part their original concern stemmed from never having experienced an event. The majority, however had continuing concerns. When asked what Duke Energy could do to decrease those

concerns, participants had differing responses: Three would like more advance notice. Three had concerns about the timing of events, each mentioning either the difficulty with winter events, early morning events, or multiple events in one day. Two were concerned with how their targeted load was calculated, with one saying *"The biggest change for the future that they could do is to change the actual PLC. The way they calculate the PLC is different for us; it's not aligning for us. Our internal evaluation of load reduction is very different from that of Duke Energy."* One respondent had a request for Duke Energy to provide a real-time energy readout.

There were only two concerns about incentives: one respondent wanted Duke Energy to raise incentives, another said his most recent incentive was not paid on time. The remaining concerns were specific to the respondent's business:

- *Duke Energy could help facilitate a dialog between us and the EPA.*
- *Duke could better understand our needs as a school.*

There was one suggestion that indicated the respondent didn't fully understand the purpose of this program: *"Buy more generators. Duke Energy has us doing this program to try to avoid purchasing more generators. They're more concerned with capital gains."*

Event Calls

Emergency events are determined entirely by PJM. Once called, Duke Energy Ohio has two hours to curtail load. Within 30 minutes, Duke relays the event notification to companies participating in PowerShare, who then have 90 minutes to complete load curtailment to their targeted load. Duke sends the notification by entering information in a notification system developed by Varolii. Varolii contacts customers through a series of escalation rules for which method of communication to use. Notifications are sent via phone, text, email and fax. Notifications cease as soon as the customer responds. Notifications are sent to everyone on a contact list provided by the company.

A Duke Energy product manager reports that they are aware of some minor issues with automating information updates between their customer relationship management system and the PowerShare communication tool; in some cases customers need to be manually removed from the database.

Winter events. The winter events in 2014 posed a challenge to the program staff. The program manager reports that their normal workplan does not plan for winter events, and they have not had a winter event since 2003. Compared with summer load shapes, the winter load shape is bimodal, with a peak in the morning from 6:30 am to 9:30 am, and in the evening from 5:00 pm to 9:00 pm.

In Ohio, PJM called emergency events for the first time since PowerShare's migration from MISO. PJM had informed Duke Energy that emergency events would last from 2 to 6 hours. Since the beginning of the year, PJM has called a total of four emergency events.

- January 7: 6:30 am to 11:00 am
- January 7: 5:00 pm to 6:15 pm (but Duke Energy gave customers the 2 hour minimum)
- January 8: called an emergency event to begin at 7:00 am but cancelled it at 6:35 am

- March 4: 6:30 am to 8:30 am

PJM Cancellation of Emergency Event. The cancellation of one of the emergency events caused concern. Cancellation of events is not trivial. Duke Energy had long been cognizant of the fact that different customer segments have different curtailment processes. Commercial customers may only need to turn their HVAC systems back on, but some industrial customers may have had to shut down processing equipment and send staff home.

Duke Energy relayed the notification that PJM had cancelled the event, but were aware that customers were not happy. However, PJM has informed Duke Energy that they would honor the event, and would pay credits for that time period.

Responding to Winter Events. Survey respondents were asked if their company's ability to respond to winter events differed from their ability to respond to summer events. Of the 21 that responded, 13 companies said they could not respond with the same ability. However, eight companies said they could. The winter emergency events were notable for many reasons, including the following three: 1) the early morning timing of the events and thus the notifications, 2) the company's load profile during the winter, which may be very different than in the summer and 3) the sheer surprise factor, of needing an emergency event in the winter. It is possible for a company's ability to respond to be due to the timing and not the load profile. In these cases, once the difficulties with early morning notification (and lack of experience with winter events) have been resolved, these companies could be ideal candidates for winter emergency events.

Lessons Learned from Winter Events. The program manager recognizes that these unexpected winter emergency events were learning experiences, and has developed several new procedures to address for future winter events:

If a regional emergency has ended, customers with emergency generators will have to stop generating. Under the new EPA rules for reciprocating internal combustion engines (RICE), customers with emergency generators were not permitted to run the generators unless there was an Emergency Alert Level 2.

For those curtailing energy use, Duke Energy will continue to pay curtailment credits until the end of the time period that was originally communicated. However, during this period, customers who choose to stop curtailing will not incur any buy-through charges.

Event notifications. In the participant surveys, respondents were asked if, in addition to the texts, fax and emails, if there was another way in which they would like to receive event notifications. None of them had additional suggestions, with many saying, "*What they do now is pretty good*", "*They do a really good job of notifying me,*" and facetiously, "*Smoke signals? I don't know.*" In particular, participants appreciate advance notice, rating its usefulness as 9.9 on a scale 1 ("useless") to 10 ("useful"), S.D. = .44.

When asked what other feedback they would like to provide Duke about the event notifications, 9 of 26 said they had no feedback, and an additional 6 mentioned they thought Duke was doing a good job. A typical comment would be, "*I think their notification process is pretty robust.*"

Multiple people are notified via phone and email. If someone is on vacation, there's many people notified. “ There were also several comments that were not related to the event notifications, regarding the inconvenience caused by cancelling an event on short notice (4 respondents). Two respondents suggested improvements to the content of these notifications, namely by adding a notification about the end of the event, and by ensuring that the event times were accurate: In one case, a typographical error caused a participant to believe the event would last until 12 a.m. (instead of 12 p.m., the correct time) causing them to call in additional contractors to staff their facility. No respondents mentioned a need to change the contact list, and an additional two mentioned that the early morning emergency event calls went unheeded because no one was at work to receive them.

We can conclude that PowerShare's methods for event notifications is comprehensive, but the unusual early morning winter emergency events created unanticipated challenges for the notification process. It would be easy for Duke to develop a protocol for reaching contacts on their cell phones for events that take place outside of normal business hours. However, there does seem to be a need to let customers know when an event has ended.

RECOMMENDATION: Duke Energy should explore whether there is indeed a real need to notify customers about the end of a curtailment event, either in the next satisfaction survey or by asking account managers to poll their companies. In addition to allowing customers to salvage their work day if an event ends early, this additional communication may decrease overall customer uncertainty about the event experience.

Curtailing Load

Over half of the companies (17 of 25 respondents) said they successfully reduced load for all the events called in 2013-2014. The others reported that they either had to pay a penalty, or have yet to hear about whether they would receive a penalty. One respondent reported that they “*worked it out with...our account manager, so we had minimal negative consequences*”. It was unclear whether this respondent was actually penalized, or if his account manager merely was able to determine that no penalty was warranted.

In the participant surveys, the majority of the respondents (15 of 23) felt that their load reduction commitment was appropriate for their company, but almost a third (7 respondents) felt that the load was either “more” or “much more” than they wanted to provide (see Figure 2). While this is a small sample, this number seems higher than the program might desire. While this might suggest that the calculations of customer load profiles need review, this finding is more likely due to the fact that for some customer segments, their winter load shape is very different from their summer load shape. Of 21 respondents, 13 said that their company's ability to respond to events was different in the summer than in the winter.

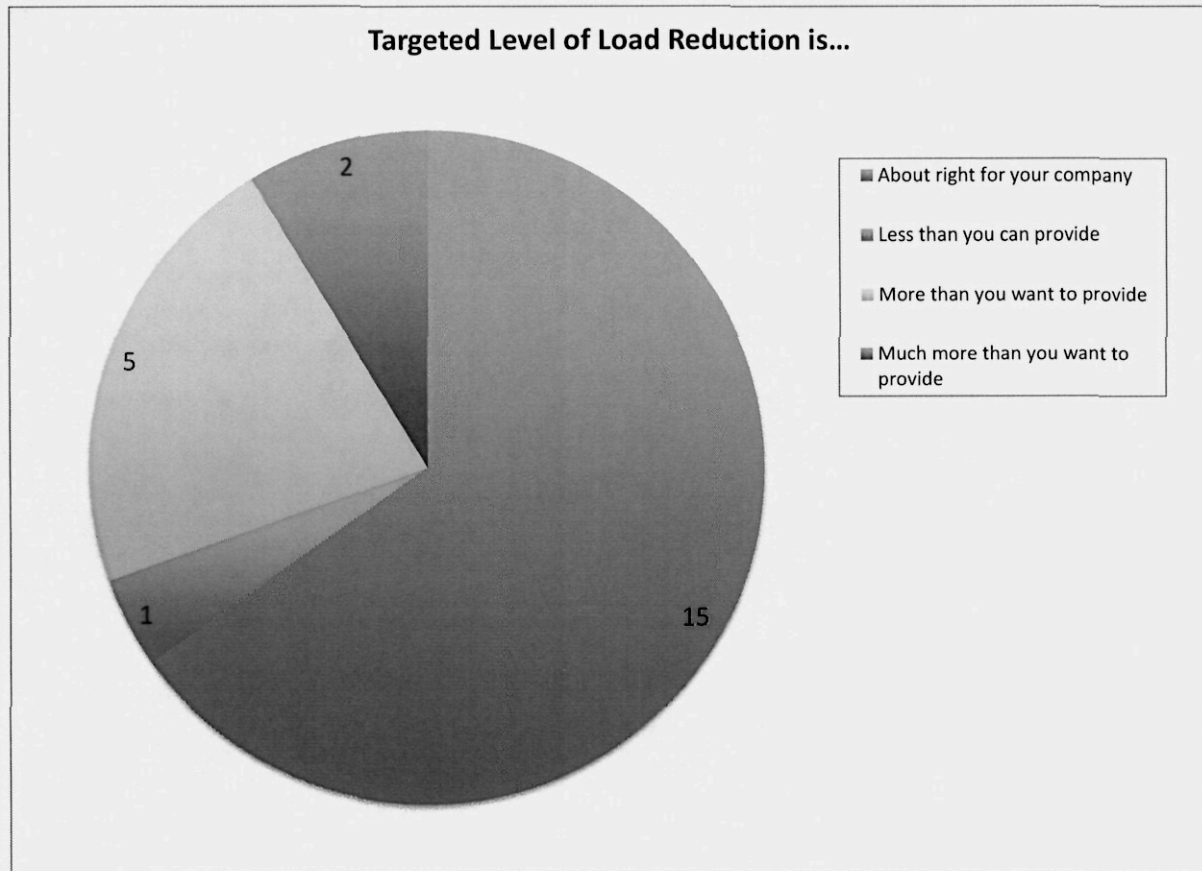


Figure 2. Targeted Level of Load Reduction

Because Duke Energy has already indicated that PowerShare will only offer summer contracts, the evaluation team expects that in the future, a higher proportion of participants will feel that their targeted load reduction is appropriate. No recommendations are warranted at this time.

Use of Energy Profiler Online. Respondents were asked to rate how easy it was for them to use Energy Profiler Online (EPO), a secure web portal through which customers can access their energy usage information. Only eight people responded, with an average rating of 7.38 (S.D.=2.06) on a scale of 1 (“very difficult”) to 10 (“very easy”). This rating shows that EPO is moderately easy to use. More importantly, 18 companies responded with either a “Don’t know / not sure” or a “Not applicable”. It seems that PowerShare Ohio customers are not regularly using EPO, most likely because they do not participate in a PowerShare Economic option.

Automated Demand Response Pilot

Ohio also has three customers on an automated demand response economic program. These customers were called twice in July of 2013, and once in September of 2013. In the prior program year, they were called a total of 5 times. The program is still operating, though PowerShare’s priorities are focused on the larger manufacturers with more load at this time. Duke Energy does not have immediate plans to expand the Auto DR program due to the costs of the technology. However, the program manager can foresee a greater need for automated demand response if PJM receives approval to change their default emergency notification time

from two hours to 30 minutes. As of the time of this report, this request is still undergoing review by the Federal Energy Regulatory Commission (FERC).

Settlement

Settlement for each month's events are paid to the customer as a credit on their bill within one or two billing cycles, depending on the billing dates. There are separate line items for the capacity premium and for the event credit. *"The settlement engine, EPO, is working out well."*

Participant Satisfaction Ratings

Figure 3 shows respondents' satisfaction with the enrollment process, and the understanding, amount and time to receive incentives. Respondents were highly satisfied with the enrollment process, rating it a 9 on a 10-point scale, where 1 indicates "very dissatisfied" and 10 indicates "very satisfied". Likewise, they have high satisfaction with the usefulness of the information they received that explained the program (8.76). When specifically asked how clear the PowerShare incentive structure was, satisfaction dropped slightly to 7.78. Satisfaction with the amount of the monthly premium credit and the event credit were both moderate (7.2 and 7.1, respectively), but satisfaction with the time it took to receive the event credit was moderately high (8.4).

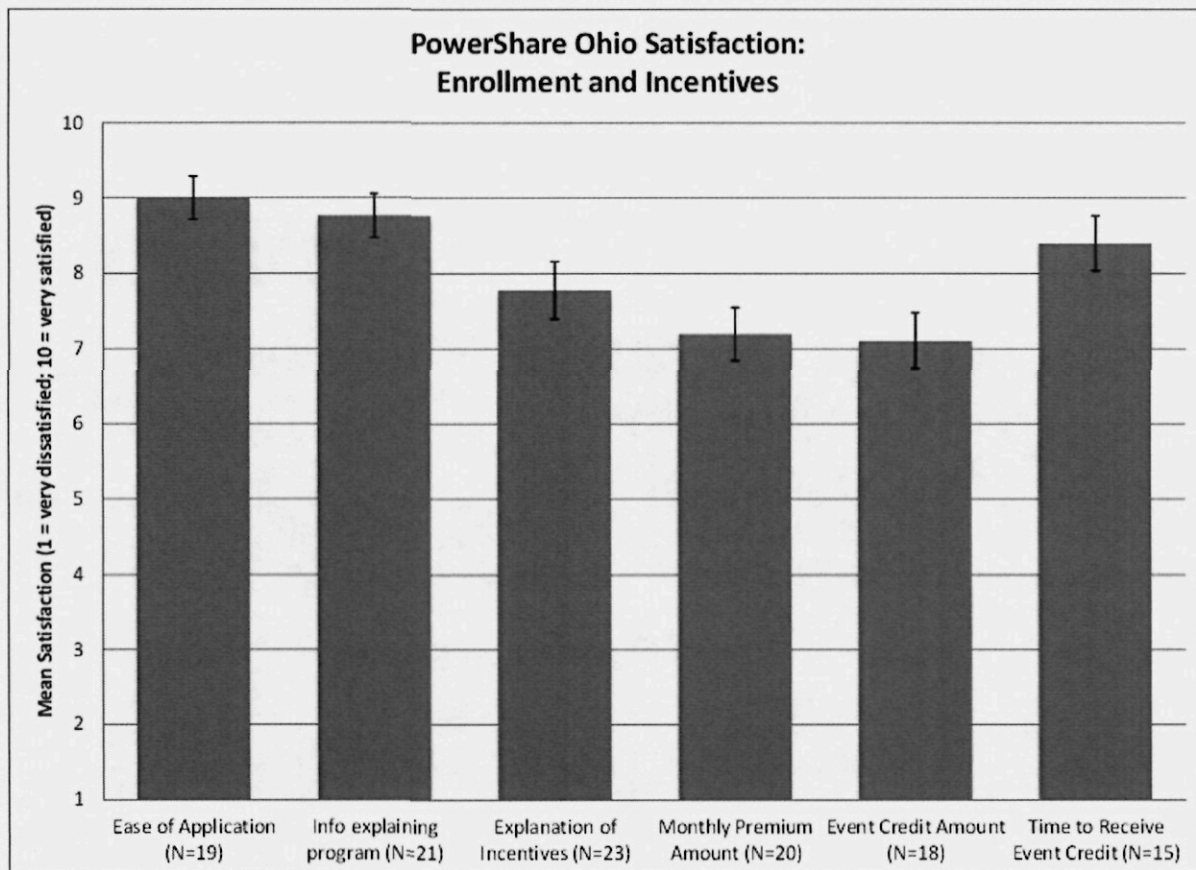


Figure 3. PowerShare Ohio Satisfaction: Enrollment and Incentives

Not unexpectedly, given the winter events, satisfaction⁶ was rated lowest for the amount of advance notice (6.54) and the time companies had to reduce load (6.36), as shown in Figure 4. Participants were moderately satisfied with Duke Energy's method for confirming how much load was reduced (7.09).

⁶ Note that one of the three Emergency events was called in Ohio on March 4, from 6:30 to 8:30 am, one week the week before the survey was fielded, which likely affected participant responses. There were three emergency events in Winter 2014, January 7, 8, and March 4.

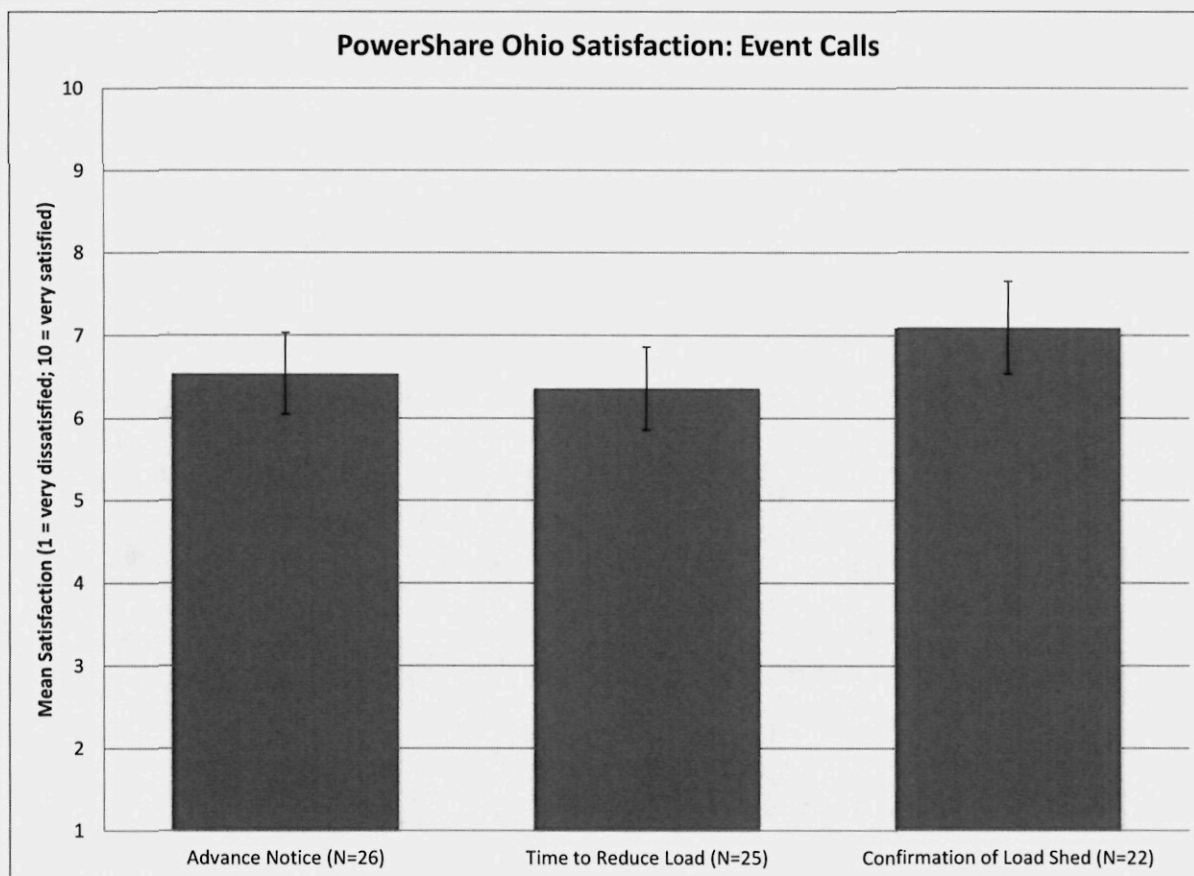


Figure 4. PowerShare Ohio Satisfaction: Event Calls

Overall satisfaction ratings, as shown in Figure 5, was moderately high for the technical expertise of Duke Energy representatives (8.65), and for the time it took for Duke Energy staff to respond to concerns (8.57). And, despite customer's concerns about the winter emergency events, satisfaction with the PowerShare program and with Duke Energy overall were still moderate (7.2 and 7.8, respectively).

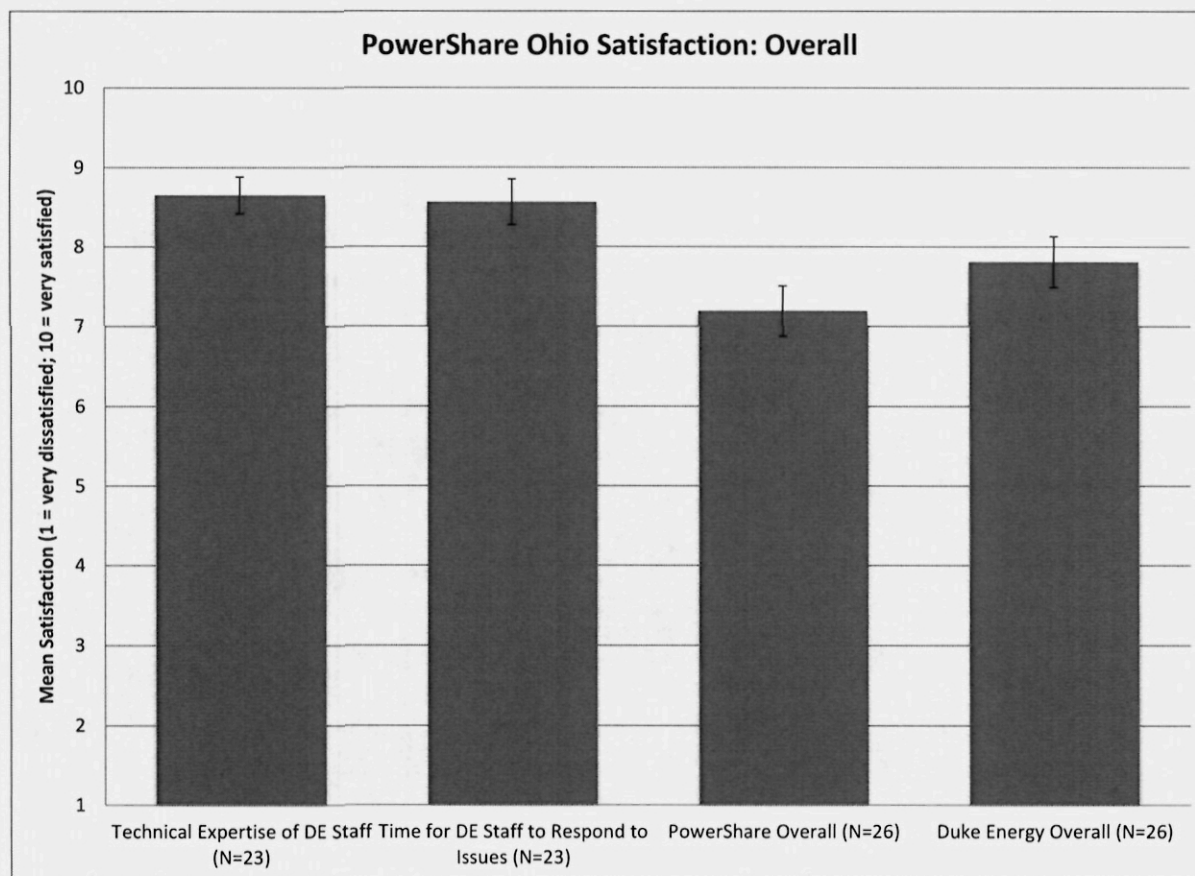


Figure 5. PowerShare Ohio Satisfaction Overall

Change in Satisfaction over Time

Nowhere is the effect of the winter events more apparent than when one compares the satisfaction ratings from 2011 to current ratings, as can be seen in Figure 6. Overall satisfaction ratings dropped for the PowerShare program itself, and for Duke Energy. This difference was significant for PowerShare satisfaction ($p \leq .05$, indicated with a “***” in the figure) and marginal for Duke Energy satisfaction ($p < .10$, indicated with a “*” in the figure). Because the survey was administered within two weeks of the March 4th 2014 winter emergency event, it is not surprising that participants might still be experiencing the stress of that event, and thus given both PowerShare and Duke Energy lower overall satisfaction ratings.

Strikingly, however, there is no decrease in satisfaction for the fundamental program activities, including enrollment, incentive levels, responsiveness and expertise of Duke Energy staff. In Figure 6, one can see that satisfaction levels for all program elements have, for the most part, remained the same as they were two years ago, the time of the previous process evaluation⁷. The

⁷ Of the 12 satisfaction rating questions, 8 were administered in the process evaluation of the 2011 program as well as this year. There are some minor improvements in wording that we do not expect would invalidate a comparison.

evaluation team interprets this pattern of results as indicating that the program has maintained its level of success from 2011, when there had been no emergency events at all⁸.

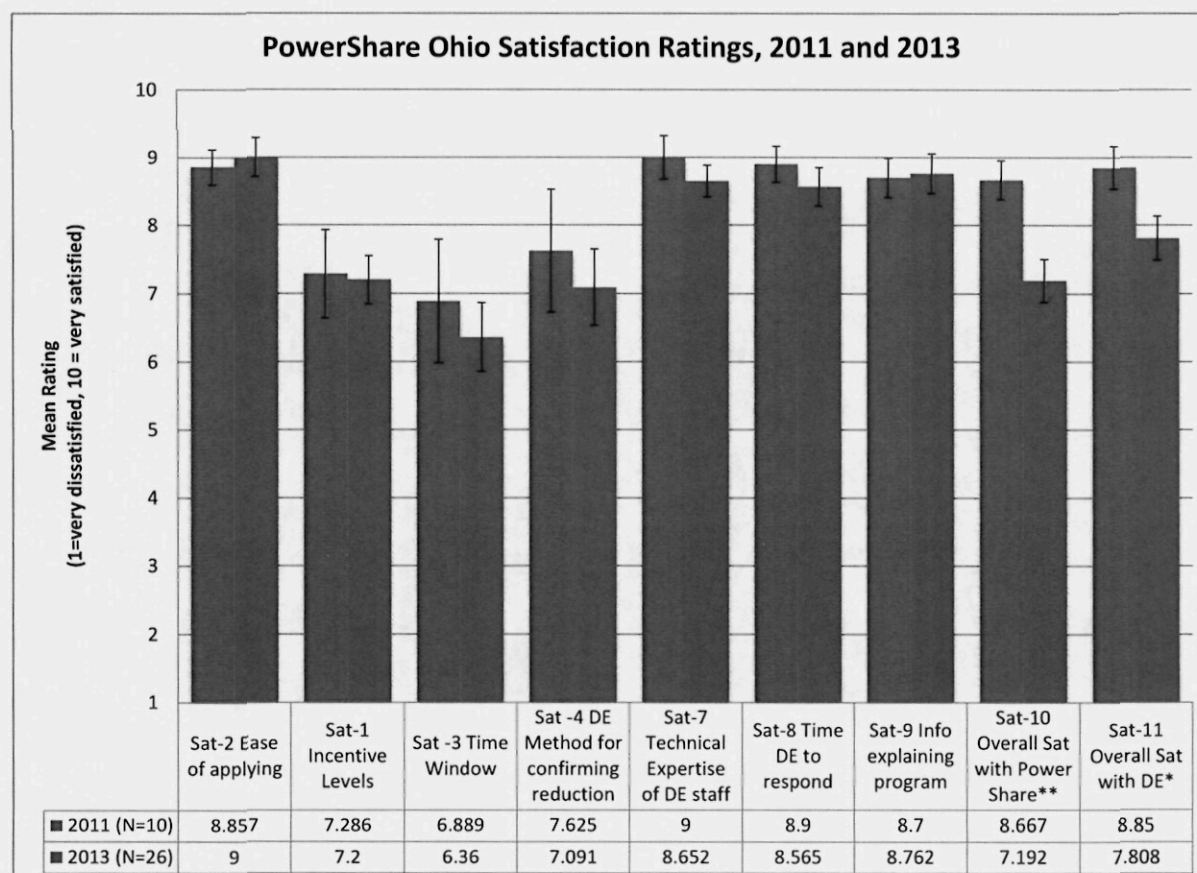


Figure 6. PowerShare Ohio Satisfaction Ratings, 2011 and 2013

Even though a product manager reported that Duke Energy has already decided that PowerShare Ohio will only offer a summer contract starting in 2014-2015, Duke Energy may wish to revisit this decision in future years. The survey data suggests that, despite the fact that customers were vocal about their dislike of the winter events, their satisfaction ratings with the program showed there were no specific program areas with which they had decreased satisfaction. This suggests that some customers may be reacting in part out of inexperience with winter events.

RECOMMENDATION: Duke Energy should not rule out offering winter contracts in the future. Duke Energy's decision to offer a summer contract for PowerShare Ohio a summer-only program will undoubtedly make customers more relieved, but based on the absence of decreased satisfaction ratings with program specifics, this decision should be revisited in the future, perhaps by offering a winter-only contract to complement the summer-only contract. This will allow Duke Energy to continue to meet the needs of those customers for whom winter events do not cause a hardship.

⁸ It is also possible that satisfaction ratings have themselves suffered a "fixed reduction" in response to the winter events, and that in the absence of any winter events there would have been a significant *increase* in satisfaction ratings across the board.

Program Strengths and Suggestions for Improvement

The PowerShare program has been traditionally a popular one for commercial and industrial customers. It offers Duke Energy another channel through which to meet customer needs. As one account manager says, *"It's a blessing to have that door because that leads to other opportunities"*.

The program manager is also pleased with the level of engagement with customers, *"Customers get it, they are on the program, the account managers are very engaged with them, it's been positive."* A product manager reports that despite the unusual winter events, PowerShare has performed well, with customers responding successfully to the event calls.

It is clear that the PowerShare program managers work closely and well with the account managers. The account managers play a critical role in the customer's satisfaction with and understanding of the program. A Duke Energy product manager reports, *"They contribute a lot to the success of the program."* Likewise, an account manager shared, *"[the product managers] have done a phenomenal job with this program and they have been more than fair in working with us and our customers. They have been very available."*

When asked if they thought the PowerShare Ohio program was working particularly well, survey respondents offered the following:

- *PowerShare helps keep the electrical grid functioning.*
- *PowerShare helps ensure that our facility receives reliable power.*
- *I like the idea that you can see on a line item where we save on our bill.*
- *I noticed they raised the credits, so that's a good thing. They also do a pretty good job with notification methods.*
- *The mechanics of how the program is operated are pretty good.*
- *Our Duke rep has done a great job with communication, information, and follow up.*
- *It seems like a good program and I'm happy to be a part of it. I know they saved a considerable amount of money.*

Program Improvement Suggestions

When asked what was not working well, the winter events were mentioned specifically by a quarter of the respondents (6 of 24), and indirectly by another 4, who mentioned difficulty with the timing of the morning alerts, and with PJM cancelling an emergency event. One participant, however, did volunteer, *"Last week, they said we could either stop it or run it out the time originally called for the event. They gave you a choice and gave you credit for finishing it out or shutting it down; that's the first time I've heard it, giving us a choice. That's very good and they should have that option every time."* By choosing to honor their commitment to their customers in the event of the cancelled emergency, Duke Energy likely avoided a lot of dissatisfaction and negative comments about deviating from the terms of the PowerShare contract, and at least one customer noted and appreciated this.

Two customers mentioned that the 90-minute window in which to reach their curtailment target was too short. One respondent seemed to believe that participation in the PowerShare Emergency program itself was mandatory, but that some companies were unfairly exempted: *"There seems*

to be something unfair about the program. Some companies receive preferential treatment and a free pass on participation... Why are some companies compelled to participate while others are not?"

Future Program Changes

The program manager reports that there are a number of changes to the 2014-2015 PowerShare program. Duke Energy believes these changes will make the program better and more competitive, and that Duke has already gotten feedback from customers to that effect.

Changes due to regulations. Due to recent changes in EPA regulations, Duke Energy will no longer offer the Generator program. The 2013-2014 PowerShare Ohio program received an exemption for emergency generators so that they could be used, but only if an Emergency Alert Level 2 had been called by PJM.

Changes influenced by the Polar Vortex winter events. Starting June 1, 2014, the PowerShare program will only offer summer contracts, running from June 1 to September 30. This aligns with PJM's Limited Demand Response program window.

In Ohio, recent regulatory approvals make it possible for the PowerShare program to offer multi-year contracts; the next contract period (starting in 2014) can extend through the summer of 2016. While there are benefits associated with having a long term commitment to participate, a Duke Energy product manager also pointed out that future changes from PJM may require that Duke Energy break those contracts and get new ones signed, with new PJM requirements.

PJM. In Ohio, PJM has asked FERC for approval to change their default notification time from 2 hours to 30 minutes. While exceptions to this can be requested, many current PowerShare participants would not be able to curtail load within 30 minutes. Should PJM's request be approved, the program manager anticipates that the PowerShare program will need to undergo major modifications prior to the 2015-2016 program year. An account manager agrees that a shorter advance notice time may not be feasible: *"A 90-min notification is doable. I think if we made it less that would be difficult. I have some customers who are changing their HVAC, and sometimes it takes an hour for HVAC load to come down."*

In 2014-2015, the capacity credit for PowerShare Ohio will also be increased to \$36/kW, in keeping with energy auction prices for PJM. The event credit will be increased as well. In past years, the energy credit for each event was paid based upon a flat fee depending on the option load that they contracted to provide. This fee was paid regardless of the load reduced during an event. In 2014-2015, PowerShare will pay a slightly larger credit of \$0.055 per kW (up from the previous \$0.04) but only pay for the load that was curtailed. This increases a customer's incentive to reduce more load. This also reduces Duke Energy's uncertainty by tying the cost to the load curtailed, rather than having a fixed cost for an uncertain load.

Impact of improving economic conditions. One change that may affect PowerShare participation is the improving economic climate. As business picks up, it may become more difficult for companies to curtail energy use and still meet their customers' needs. As one account manager explains, *"I think because the economy is improving some, there are some customers that participated that don't have the flexibility anymore."*

Summary

It is clear that the recent winter events (with one emergency event called less than two weeks before participants had been surveyed) had a negative impact on the overall satisfaction with the PowerShare program and with Duke Energy itself. However, none of this dissatisfaction seemed to affect customer's views on the individual activities and processes within PowerShare, as compared to ratings in the process evaluation of the 2010-2011 PowerShare program, when there was no experience with emergency events (see Figure 6). This pattern of results, in the context of the recent winter events, suggests that the PowerShare Ohio program is in actuality performing well. The Duke Energy program manager noted that despite the unexpectedness of the winter events, they received no customer complaints or concerns about why these events were called. *"Customers know that 14 below was not normal."*

The PowerShare Ohio program has a number of challenges ahead: The improving economic conditions, while good for customers, also may mean that customers will not be as willing to participate in the PJM emergency demand response program. In addition, PJM's recent proposal to provide only 30 minutes of advance notice for emergency events, even though exemptions would be allowed, may make participation even less attractive to customers.

Duke Energy has proactively begun to address some of these issues. The increased premium credit will increase the attractiveness of the Emergency Only program to customers, and the new event credit that is tied to actual load during an event will reinforce the importance of achieving the targeted load. The new marketing efforts targeting the unassigned Small and Medium Business customer segment will also provide Duke with additional capacity, as well as increase their ability to meet the needs of more Ohio customers, more efficiently. The evaluation team concludes that while PowerShare Ohio is a complex program facing both environmental and political challenges beyond Duke Energy's control, the seasoned program staff at the helm is initiating proactive efforts that should allow them to address these challenges.

Appendix A: Management Interview Protocol

Interviewer: _____ Date of Interview: _____ Interview method: _____

Name: _____

Title: _____

Position description and general responsibilities:

We are conducting this interview to obtain your opinions about and experiences with the PowerShare Program for the state of OH as it was implemented between the dates of January 1, 2012 and December 31, 2013. We'll talk about the Program and its objectives, your thoughts on improving the program and its participation rates. Today's interview will take about an hour to complete. May we begin?

Program Overview

1. In your own words, please briefly describe the PowerShare Ohio Program's goals.
2. Please describe your role and scope of responsibility in detail. What is it that you are responsible for as it relates to this program? When did you take on this role?
3. Would you please tell me the history of the PowerShare program in Ohio?
4. In your own words please describe how the PowerShare Program works and go over its design, marketing and operational approaches. Walk us through the participatory steps starting with a customer who knows nothing about the program.
5. Please describe for me the roles and responsibilities of vendors that are supporting Duke Energy's PowerShare program in the state of Ohio?
6. Are there any changes you would like to see in the vendors' roles or responsibilities that would improve the PowerShare program's operations?
7. How does PowerShare fit into Duke Energy's demand response portfolio?
8. What other demand response programs does Duke offer to either residential or nonresidential customers?

9. How does Duke Energy prioritize use of the capacity provided by each of these demand response programs?

Objectives

10. Were there any quantitative targets in terms of participant enrollments? If yes, what were they in 2012? In 2013?

11. Were there any quantitative targets in terms of demand response capacity? If yes, what were they in 2012? In 2013?

12. Where there separate quantitative targets for each of the four participation options?

13. How do you set these objectives?

14. Please explain SB 221 and its influence on PowerShare program objectives.

15. How well has Duke Energy been meeting the capacity goals set by SB 221?

16. Did you meet those objectives? Exceed them?

17. Since the program objectives were devised, have there been any changes in external influences (such as market conditions or new regulations) or internal influences that have affected the PowerShare program's operations?

18. Should the current objectives be revised in any way because of these changes that developed since the program objectives were devised?

19. From the 2012 & 2013 participant lists requested for OH, it looks like all but one of the companies have signed up for the emergency only option, is this correct?

20. What are Duke Energy's plans for enrolling more participants in CallOption?

21. What is Duke Energy's need for having an economic demand response program in OH?

22. Please tell me about the Auto Demand Response program in OH?

23. Can you please provide me with a list of the companies that are participating in the pilot?

24. What information do you need that would help you with program design in the future?

Incentives

25. What were the incentives for the PowerShare program in 2012 & 2013? Do you expect that these will change in the future?

26. How do customers receive the monthly premium credit?

27. How do customers receive the load reduction credit for the events in which they participated?
28. Are these two credits reported separately on their invoice?
29. Do you think the incentives offered through the PowerShare Program are adequate enough to entice the C&I community to enroll in the program? Why or why not?
30. Do you think the customers understand the incentive levels and how they are calculated? Have there been any issues relating to the customers understanding the incentive approach or confusion over what they are paid? What can be done to minimize this confusion?
31. Do you think customers have additional ability to shed load that could be tapped if the incentives were increased?

Marketing

32. What kinds of marketing, outreach and customer contact approaches do you use to make your customers aware of the program? Are there any changes to the program marketing that you think would increase participation?
33. Do you think the materials and information presented to the C&I community about the PowerShare Program provides a complete enough picture for them to understand the participatory benefits of the program? How might they be improved?
34. Are there specific customer types (business types) or market segments that you think Duke Energy should focus more effort on enrolling? What are they? How should PowerShare approach them with this program?
35. What market information, research or market assessments are you using to determine the best target markets or market segments on which to focus?
36. What are the key barriers to more efficient program operation?
37. What are the key barriers to achieving greater load reduction?
38. Are there any steps of the enrollment process that is more difficult for the customer? How does PowerShare plan to address these issues.
39. How many customers have unenrolled from the program, in 2012 and 2013, for each of the four options? How many MW does this represent?
40. What are most common reasons for unenrolling?
41. Describe the use of any internal or outside program advisors, technical groups or organizations that have in the past or are currently helping you think through the program's approach or methods. How often do you use these resources? What do you use them for?
42. Do you think there should be changes made to the structure of the participation options?

Event calls

43. How many and what types of events were called in 2012, and in 2013?
44. What are the steps customers must go through to participate in the voluntary and economic events?
45. How do you track, manage, and monitor or evaluate customer response to the event calls? How do you know if they reached their load shifting objectives?
46. For customers who do not shed as much load as anticipated, how do you find out why customers did not shed enough load?
47. Can you describe for me your understanding of how customers react to a call? How quickly do they learn of a call, what determines what they can do, how quickly can they react?
48. Given that PowerShare customers have different capabilities to react to an event depending upon their work volumes, production schedules, etc., how does PowerShare capture needed savings within the different customer conditions and capabilities in the market?
49. What is the quality control, tracking and accounting process for determining how well control and control strategies work at the customer level and at the program level?
50. Are there any market segments or customer types that the program is now serving that consistently are not able to provide the load shed within the timelines and notification systems used today? What would you suggest should be done about this customer segment?
51. Overall, what about the PowerShare Program works well and why?
52. What doesn't work well and why? Do you think this discourages participation?
53. In what ways can the PowerShare Program's operations be improved?
54. Are there any other issues or topics you think we should know about and discuss for this evaluation?
55. How did PowerShare Carolinas System respond to the following recommendations, that were made in the previous evaluation study?
 - a) **RECOMMENDATION:** Duke Energy should consider providing a summary sheet for all PowerShare customers in the Midwest region that highlights the program's key components, and their company's specific commitment in their agreement. Duke Energy should also consider developing a process flow chart that illustrates the sequence of events during an event day, starting with the identification of event conditions, notification of customers, and the different paths to settlement should the customer choose to reduce load or buy through. Because events are relatively rare, this would provide a quick refresher for customers in preparation for an upcoming event season.

a. Duke Energy's response and any actions taken:

i. _____

b) RECOMMENDATION: Duke Energy should obtain more data from customers on whether technical assistance with developing a curtailment plan and schedule would encourage more customers to participate in PowerShare Ohio. This may be accomplished informally by the Duke Energy account managers, or more formally with a telephone survey of customers whose main strategy is curtailment.

a. Duke Energy's response and any actions taken:

i. _____

c) RECOMMENDATION: Duke Energy should consider the feasibility of offering a renewal system online. This may be an option that is only offered to experienced program participants, who have had the experience of responding to event calls and know whether their capacity commitment is achievable without modification. Due to the complexity of calculating baselines, an online renewal system should not be offered to customers who need to modify their capacity commitment. An online renewal system may be more convenient for customers by reducing paperwork and may also help reduce the workload of the account managers.

a. Duke Energy's response and any actions taken:

Appendix B: Participant Survey Protocol

Survey ID _____

Surveyor Name _____

State

☐ Ohio**Participant Info**

Name: _____

Company: _____

Title: _____

Hello, my name is _____. I am calling on behalf of Duke Energy to conduct a customer satisfaction interview about the PowerShare Program. May I speak with _____ please?

We need your help. Duke Energy has given us your name as someone who might be able to share some of your experiences with the PowerShare Program. We are not selling *anything*. We would like to conduct a short interview that will take about 15 minutes and all your answers will be kept confidential. This information will enable Duke to make improvements to the program and the application process.

Message for voicemail

Hello, my name is _____ from TecMarket Works. I am calling on behalf of Duke Energy to conduct a customer satisfaction interview about the PowerShare Program. Duke Energy has given us your name as someone who might be able to share some of your experiences with the PowerShare Program. We are an independent evaluation firm and we are not selling anything. We would like to conduct a short interview that will take about 15 minutes. All your answers will be kept confidential. This information will enable Duke to make improvements to the program and the application process.

If you can help, please call me at _____. If there is someone at your company who would be more appropriate for us to speak to, we would appreciate if you could let us know that as well.

OPTIONAL - only If the customer wishes confirmation from Duke.

If you would like to verify this request, please contact your account manager. Or, you can contact *****, Manager of Measurement and Verification Ops, at Duke Energy. She can be reached at (***) ***-**** or *****@duke-energy.com.

IN-1. Would you be able to help us?

☐ Yes☐ No

(If no)

IN-2. Can you please give me the name of someone else who might be the more appropriate person to tell us about your company's participation in PowerShare?

ESTABLISHING QUESTIONS

ES-1. Would you please tell me what your company does and what your role is in your company? _____

ES-2a. Do you manage more than one site that participates in PowerShare for your company?

- ☐ Yes
☐ No

If yes,

ES-2b. How many sites? _____

Most of the questions you will be answering today are about PowerShare in general, but if you manage sites that participate in PowerShare differently from one another, please answer for your company's facility that is listed as ...

[Please fill in facility name from info sheet].

ES-5. How long has your company been participating in the PowerShare Program?

INFORMATION-GATHERING PHASE

INFO-1. How did you first become aware of the PowerShare Program?

- ☐ Duke Energy sent me a brochure
☐ A Duke Energy representative told me about it
☐ Duke Energy website
☐ I saw an ad in: _____
☐ Other: _____
☐ Don't know

INFO-2. Please tell me how useful that source was in providing the information you needed to decide whether or not to participate. Please rate the usefulness of that source on a scale of 1 to 10, with 1 meaning "Almost nothing I needed", and 10 meaning "Everything I needed".

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

(If INFO-2 was less than 10, ask questions INFO-3a, 3b and 3c)

INFO-3a Where else did you go to get information? _____

INFO-3b. What additional information were you seeking? _____

INFO-3c. Were you able to get the information you needed about the program's participation requirements and benefits?

- ☐ Yes
- ☐ No
- ☐ DK/NS

OHIO: AUTO DR PILOT

CODR-1. Are you, or were you, a participant in the Automated Demand Response pilot, which is also known as Auto DR?

- ☐ Yes
- ☐ No
- ☐ DK/NS

(If yes, ask CODR-2, CODR-3 and CODR-4)

CODR-2. What do you like most about Auto DR?

CODR-3. What do you like the least about Auto DR?

CODR-4. Please rate your overall satisfaction with the Auto DR pilot, on a scale of 1 to 10, where 1 means that you are very dissatisfied and 10 means that you are very satisfied.

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

If rating is less than 8:

CODR-5. What can be improved about the Auto DR program?

DECISION MAKING

DM-1. What was the primary reason that you decided to participate in the PowerShare Program?

DM-2. Was there a secondary reason that your company decided to enroll?

DM-3a. Duke Energy offered an early enrollment period with a bonus if your company renewed their contract in January. Did your company renew under this early enrollment period?

- ☐ Yes
- ☐ No
- ☐ DK/NS

If "No"

DM-3b. What were some of the reasons why your company did not renew under the early enrollment period.

If "No"

DM-3c. Is there anything Duke Energy can do to help your company make a decision early?

EVENT PARTICIPATION

EV-1. We understand no PowerShare emergency events were called in 2013. How many Power Share emergency events has your business been asked to respond to in 2014 so far?

- ☐ 0
- ☐ 1 or more (*enter number*): _____
- ☐ DK/NS
- ☐ No emergency events but we did have a test event.(*enter number*) _____

(For the Ohio Auto DR participants)

EV-3a. How many Power Share economic events has your business been asked to respond to in 2013?

- ☐ 0
- ☐ 1 or more (*enter number*): _____
- ☐ DK/NS

(For the Ohio Auto DR participants)

EV-3b. How many Power Share economic events has your business been asked to respond to in 2014 so far?

- ☐ 0
- ☐ 1 or more (*enter number*): _____
- ☐ DK/NS

EV-4a. In addition to phone calls, texts, fax and emails, is there another way in which you would like to be notified of events?

EV-4b. For some events Duke Energy is able to send out a notice a day ahead of the event, to warn of the possibility that an event may occur. Can you please rate how useful it is for you to receive the "day ahead" notices, on a scale of 1 to 10, where 1 means "Useless" and 10 means "Useful".

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ NA

EV-4c. Do you have any other feedback for Duke Energy on their event communication efforts?

EV-5d What did you need to do at your facility to reduce load?

EV-6a Was your company successful in reducing load?

- ☐ Yes
- ☐ No
- ☐ DK/NS

If No,

EV 6b. Were there any negative consequences of not reducing enough load?

EV-8. Please rate how easy is it for you to use the Energy Profiler Online, or EPO, on a scale of 1 to 10, where 1 means very difficult and 10 means very easy.

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

(If rating was less than 8)

EV-9. What can be done to make using EPO easier for you?

EV-10 Would you say the targeted level of load reduction you currently have with Duke Energy is

- ☐ Much less than you can provide
- ☐ Less than you can provide
- ☐ About right for your company
- ☐ More than you want to provide
- ☐ Much more than you want to provide
- ☐ DK/NS

EV-12. For winter events that were called recently, were there any differences in your company's ability to respond compared to summer events?

IMPROVEMENTS

IMPR-1. While your company was deciding whether or not to enroll, what was the biggest concern about participating in PowerShare?

IMPR-2a. During the past season, did anything happen to decrease your concern?

☐ Yes

☐ No

If YES

IMPR-2b. What happened?

If NO

IMPR-2c. What can Duke Energy do that would decrease your concern?

IMPR-4. Is there anything about PowerShare you would say was working exceptionally well? It's fine if there isn't.

IMPR-5. What doesn't work well and why?

SATISFACTION

We would like to ask you a few questions about your satisfaction with various aspects of the program. For these questions, we would like you to rate your satisfaction using a 1 to 10 scale where a 1 means that you are very dissatisfied with that aspect and a 10 means that you are very satisfied.

SAT-1. How would you rate your satisfaction with: The ease of applying for the program?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ NA ☐

DK/NS

If rating was less than 8

SAT-1a. How can this be improved?

SAT-2. How would you rate your satisfaction with: The amount of the monthly premium credit provided by the program?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ NA ☐

DK/NS

If rating was less than 8

SAT-2a. How can this be improved?

SAT-3. How would you rate your satisfaction with: The amount of the load reduction credit for the events in which you participated?

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

If rating was less than 8

SAT-3a. How can this be improved?

SAT-4. How would you rate your satisfaction with: The time it took for you to receive your load reduction credit?

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

If rating was less than 8

SAT-4a. How can this be improved?

SAT-5. How would you rate your satisfaction with: How clear the explanation of the PowerShare incentive structure was?

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

If rating was less than 8

SAT-5a. How can this be improved?

SAT-6. How would you rate your satisfaction with: The amount of advance notice you had about the events

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

If rating was less than 8

SAT-6a. How can this be improved?

SAT-7. How would you rate your satisfaction with: The time window in which you were required to reduce your load once you had received notification about the start of the event?

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

If rating was less than 8

SAT-7a. How can this be improved?

SAT-8. How would you rate your satisfaction with: Duke Energy's method for confirming how much load you reduced?

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

If rating was less than 8

SAT-8a. How can this be improved?

SAT-9. How would you rate your satisfaction with: The technical expertise of Duke Energy staff

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

If rating was less than 8

SAT-9a. How can this be improved?

SAT-10. How would you rate your satisfaction with: The time it took for Duke Energy staff to respond to any questions or address any issues.

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

If rating was less than 8

SAT-10a. How can this be improved?

Sat-11. Considering all aspects of the program, how would you rate your overall satisfaction with the PowerShare Program?

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

If rating was less than 8

SAT-11a. How can this be improved?

SAT-12. How would you rate your overall satisfaction with Duke Energy?

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

If rating was less than 8

SAT-12a. How can this be improved?

SAT-13. Are there any other thoughts or comments you would like to share with Duke management about the PowerShare Program that we have not discussed already?

Thank you for taking this time to share your thoughts! We appreciate it very much.

Final Report

**Process Evaluation
of the Residential Smart Saver®
HVAC Program in Ohio and Kentucky**

**Prepared for
Duke Energy**

**139 East Fourth Street
Cincinnati, OH 45201**

May 16, 2014

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Executive Summary

The key findings and recommendations identified through this evaluation are presented below. The evaluation includes information derived from qualitative interviews with program managers and implementation vendors, as well as through qualitative interviews with trade allies. Survey analysis arises from separate surveys of trade allies and residential customer participants.

On August 7, 2013 in Case 12-665 the Ohio Commission issued the following finding of fact (49) and order (50):

(49) Sixth, Evergreen recommends that Duke's future evaluation work should rely on primary data collected from Ohio customers and be completed as close as realistically possible to the program year being evaluated. Duke replies that its evaluations do rely on primary data collected from Ohio customers, with the timing dependent on program participation and approval of cost recovery. Duke notes that it has not always been possible to align the evaluation with a single calendar year.

(50) The Commission finds that Evergreen's recommendation is reasonable and should be adopted, although we note that it appears that Duke is already making efforts to comply with the recommendation to the extent feasible. (emphasis added)

As indicated in the record Duke Energy has begun working to comply with that recommendation by the Independent Evaluator for future reports to the extent feasible. However at the time of the August 2013 order Duke Energy had already filed evaluation plans as required under Commission Rules 4901:1-39-04 and 05 that govern program years 2012 and 2013. These evaluation plans were included in the update filings of May of 2012 and 2013 in Cases 12-1477 and Case 13-1129, as well as the new portfolio filing case 13-0431. Given Duke Energy's filed EM&V commitments and a desire to produce evaluation work "as close as realistically possible" to the program year being evaluated it must be appreciated that full compliance with this recommendation will be challenging in work already scoped and fielded before August 2013. Indeed many of the sampling plans and field studies were complete before the order issued in August of 2013. The Commission clearly understands this timing constraint as evidenced in their choice of wording, "to the extent feasible." Moreover, Duke Energy has run preliminary analyses of results with Ohio only data as well as sample augmented with Kentucky data. While there is some drop in precision, the precision for this process evaluation report are as follows:

Evaluation Component	Ohio n	Kentucky n	Precision of OH/KY Combined, as Reported	Precision of OH Results, if Kentucky Data were to be Removed
Participant Surveys	136	25	90% +/- 6.4	90% +/- 7.0

Key Findings from the Management Interviews

- The Smart Saver Residential HVAC program is a mature, well-run program with a robust and well-informed trade ally network that spans Duke Energy's service territory in Ohio and Kentucky. Program design is well considered and provides financial incentives at the moment of highest influence in order to encourage the adoption of more efficient equipment.

- The transition from the previous third party vendor to GoodCents was achieved without interruption of daily operations. The partnership between Duke Energy and GoodCents is strong, and GoodCents' depth of experience in HVAC program administration is readily apparent in the active engagement of trade allies in the field, as well as in the smooth functioning of rebate processing and call center activities.
- Despite the well-run nature of the program, its participation numbers are not meeting Duke Energy's goals. During 2012, the program drew 2,978 rebate applications toward a target of 4,057, representing 73% of goal and an average of 65 measures per week. Year-to-date performance appeared to be slightly lower for 2013 with the trade ally network delivering 1,596 rebate applications at an average of 53 measures per week by June 30, 2013 toward an annual goal of 4,260 (37%).
- The Ohio program goal for 2012 was set at 3,397 applications, while the actuals were 4,036, representing 119% of goal for the year and an average of 88 measures per week. For 2013 the goal is 3,562 applications with year to date performance of 1,739 applications during the same time period. This represents 49% of the annual goal and an average of 58 applications per week.
- The 2012 Kentucky program goal was set for 1,385 rebate applications for qualifying equipment. Actual performance achieved 621 rebate applications, representing 45% of goal, with an average of 14 measures per week. The 2013 goal is set for 1,459 rebate installations. As of June 30, 2013 the program had delivered 298, representing 20% of goal with an average of 10 measures per week.
- Reasons for this level of performance were not specific, but may include: less federal tax credits which in previous years were supplementing the Duke Energy rebates, the January 1, 2013 elimination of the gas furnace rebates in Ohio, and in Kentucky lower than anticipated heat pump sales due to fuel switching to gas furnaces due to their cheaper perceived operating costs.

Key Findings from the Trade Ally Interviews

- While trade allies are very satisfied with the program and eager for it to continue, they offered an extensive list of observations regarding areas for improvement.
- The most significant areas needing improvement focused on the level of detail required on the rebate applications and the rigor with which even minor clerical errors cause applications to be rejected.
- Trade allies also expressed concerns about the program practice of sending notifications about errors and rejections directly to customers without first allowing the trade ally sufficient to provide them an opportunity to rectify the situation.
- Rebate levels are generally considered appropriate as they are. Although several trade allies did request higher incentives. Many trade allies doing business in Ohio requested that furnace rebates be reinstated, even if at higher efficiency levels. Others requested new rebate offerings for additional types of equipment, including other heat pumps, mini-splits, high efficiency boilers, and programmable thermostats.
- Wait times for most rebate checks fit within the program's advertised four to six week timeframe. The majority of trade allies find the wait times acceptable. A few examples of longer wait times were noted, but these seem to have occurred during the 2012 transition

phase when rebate applications were being sent to the former third party vendor and then forwarded to GoodCents.

- Overall trade allies are happy with the program and they report that they would sell fewer high efficiency units if the program were terminated. They generally consider the program's rules to be reasonable business requirements that must be observed in order to obtain the incentives.

Key Findings from the Trade Ally Survey

- Among the trade allies surveyed, a near majority (47%) filed less than 20 rebate applications per year, while 20% of trade allies filed 100 or more per year, including one trade ally that filed 1,302 rebate applications. The median number of applications filed was 20. Numerous trade allies indicated that their rebate volume had declined since the rebates for gas furnaces in Ohio had been eliminated.
- Trade ally estimates showed that roughly 60% of their customers were replacing failed units versus 40% replacing still functioning units.
- Forty three percent of trade allies estimated that approximately one in four of their customers had heard of the Smart Saver program before it was discussed at the point of sale. The mean estimate of customer awareness was 28%.
- Nearly one third (32%) of trade allies rated the rebates influence on customer purchases of high efficiency equipment as an 8, 9, or 10. Other factors considered more influential than the rebate included: the overall purchase price, the trade ally's reputation, the unit's efficiency rating, potential monthly bill reductions, and equipment operating costs.
- Although trade ally representatives and phone support providers scored well in the qualitative interview section, among survey respondents the timeliness and responsiveness of GoodCents staff were cited as reasons for dissatisfaction.
- Nonetheless, overall trade allies report that they are satisfied with the program, with two thirds (67%) rating the program an 8, 9 or 10, and rendering a mean satisfaction score of 7.8. Difficulty of the new paperwork was the primary reason cited for diminished scores.
- A small number of trade allies reported that the program caused more hassle than it was worth and hence they or others in their companies do not actively promote the rebates.

Key Findings from the Participant Surveys

- Most customers first learned about this program from a trade ally (78.9% or 127 out of 161), and trade allies filled out (80.1% or 129 out of 161) and submitted (80.7% or 130 out of 161) rebate forms for the majority of surveyed participants.
 - See *Awareness of the Smart Saver Program and Receiving Rebates for Participation in Smart Saver* on pages 74 and 76.
- Only 13.0% (21 out of 161) of surveyed customers sought more information about the program; the most common way these customers sought more information was to go to the Duke Energy website (47.6% or 10 out of 21). Only three customers (1.9% of 161) reported having questions that remained unanswered. While participating in the program, 6.2% (10 out of 161) contacted Duke Energy with questions, and only one reported that their questions were not answered (10.0% of 10 contacting Duke Energy, or 0.6% of 161 total respondents).

- See *Gathering Information about Duke Energy's Smart Saver Program* on page 74.
- Fewer than one survey participant in ten (8.7% or 14 out of 161) has had problems receiving their rebate, and another 1.9% (3 out of 161) say they have not received their rebates yet¹. Though the specifics vary from person to person, generally the problems are described as delays in receiving rebates due to delays in submitting paperwork or getting paperwork approved. Some blame "communication issues" between trade allies, Duke Energy and/or the customer.
 - See *Receiving Rebates for Participation in Smart Saver* on page 76.
- Customers give this program high satisfaction ratings, with averages ranging from 8.2 to 8.5 on a 10-point scale for specific aspects of the program, and an overall mean satisfaction rating of 8.8 for the program overall. On average, these customers also rated their satisfaction with Duke Energy at 8.5 out of 10. However, customers who received rebates for installing new heat pumps are significantly less satisfied with the amount of the rebate (7.9 out of 10) than customers who installed central air conditioners (8.6 out of 10).
 - See *Customer Satisfaction with the Residential Smart Saver Program* on page 80.
- Customers in Ohio were also asked to rate their satisfaction with the program on a five-point scale: 91.2% (124 out of 136) gave ratings of "somewhat" or "very" satisfied, while only 1.5% (2 out of 136) reported being "somewhat" or "very" dissatisfied with the program.
 - See *Program Satisfaction Ratings in Ohio* on page 92.
- Customers were asked what they liked most and least about this program. More than two-thirds (70.8% or 114 out of 161) mentioned the incentive rebate as their favorite thing, followed by the ease of participation (11.8% or 19 out of 161) and the program incentive allowing the purchase of a better unit (10.6% or 17 out of 161). A large majority of customers could not name a least favorite aspect of the program (77.6% or 125 out of 161), while the most frequently-mentioned least favorite things are that the rebate is too small (6.8% or 11 out of 161) and waiting too long for the rebate (5.0% or 8 out of 161).
 - See *Customer's Favorite and Least Favorite Aspects of Smart Saver* on page 92.
- When asked what could be done to increase interest and participation in this program, the most frequent recommendations from customers are to increase general advertising (36.0% or 58 out of 161), include more information with monthly bills (28.0% or 45 out of 161), increase involvement with trade allies (16.1% or 26 out of 161) and offer a larger incentive (11.2% or 18 out of 161).
 - See *Improving Participation in Residential Smart Saver* on page 94.
- More than a quarter of surveyed customers (29.8% or 48 out of 161) report that they have taken additional energy efficiency actions inspired by participating in the Smart Saver HVAC program. The most common activities include using more efficient lighting (7.5%

¹ The evaluation team and Duke Energy have confirmed that these customers have all been issued rebate checks.

or 12 out of 161), upgrading other appliances (6.2% or 10 out of 161), upgrading windows and doors (6.2% or 10 out of 161) and adding insulation (5.6% or 9 out of 161). Overall, the average rating of influence of the program on these actions is 4.6 on a 10-point scale, indicating moderate influence.

- See *Energy Efficiency Actions and Upgrading Other Appliances* on page 96.
- A third of surveyed customers (34.8% or 56 out of 161) have also added other new appliances to the household in the past year. The most common installations for customers who received program rebates for central air conditioning installations are furnaces (26.3% or 21 out of 80), while for customers who received rebates for installing new heat pumps the most frequently installed other appliances are refrigerators (8.6% or 7 out of 81), water heaters (7.4% or 6 out of 81), clothes washers (6.2% or 5 out of 81) and stoves/ovens (6.2% or 5 out of 81).
- See *Energy Efficiency Actions and Upgrading Other Appliances* on page 96.

Process Evaluation Recommendations

Below is a list of key recommendations. For a full set of evaluation recommendations see the Evaluation and Findings Summaries at the end of each section of this evaluation.

Key Recommendations from the Management Interviews

- Consider separating or eliminating the EMC fan requirement. Doing so would help to increase the installation of high efficiency heat pumps and air conditioners since it would eliminate lost opportunities where customers are willing to upgrade air conditioners or heat pumps, but not willing to pay to upgrade still functioning furnace blowers. This would be particularly helpful in areas where oil or natural gas-fired furnaces are prevalent.
- Consider test piloting a tiered rebate system whereby higher efficiency equipment garners higher financial incentives.
- The GoodCents web portal provides online self-service tools that can reduce the number of trade allies phoning the call center, however trade ally adoption of the web portal appears low. Therefore we recommend increasing trade ally awareness of web portal and its features. We also encourage the installation and use of web tracking software, such as Google Analytics, to monitor its internet traffic.
- Consider boosting residential customer awareness of the program via news stories, direct marketing and educational outreach at home shows and other events where homeowners congregate.
- Monitor the newly implemented internet-based feedback system to provide additional insights directly from customers and trade allies as those survey results become available.

Key Recommendations Provided During Trade Ally Interviews

The recommendations immediately below are based upon direct feedback from trade allies.

- Simplify the rebate application forms, or educate trade allies regarding which details on rebate applications are required, which are optional, and why requested information is necessary.

- In light of the fact that the serial numbers from the old units are difficult to obtain, consider eliminating that requirement, or at least marking that data field as optional.
- Consider using the customer's service address as the primary means of identification instead of the account number, since obtaining the account number leads to privacy concerns, clerical mistakes, and delays caused by customers not providing the required information.
- If AHRI numbers are required then provide an easier-to-use alternative to the AHRI website such as a chart or database that makes finding the requisite information easier to obtain.
- Modify the layout of the printed forms to provide larger writing spaces for data entry.
- Allow extensions to the rebate application deadline upon request.
- Trade allies felt they were not given an opportunity to redress errors and rebate rejections prior to GoodCents sending notification letters directly to customers. Therefore, increase trade ally education about the current method for redressing errors and extend the response time for a trade ally return phone call before letters are mailed.
- Increase the information provided on the web portal regarding the information needed to approve rebate applications, and the estimated arrival date of rebate checks.
- Batch trade ally checks together and mail them in a single envelope.
- Educate trade allies about where they can download a digital PDF rebate application forms.
- Consider expanding rebate coverage to other technologies.

Key Recommendations Provided During Trade Ally Surveys

The recommendations immediately below are based upon survey findings and trade ally opinions.

- Simplification of the rebate application— or at least better explanations about what is required and why— may help to improve satisfaction among trade allies. It may also increase rebate levels since a small number of trade allies reported discontinuing their participation due to their dislike of the new paperwork.

Introduction and Purpose of Study

Summary Overview

This document presents the process evaluation report for Duke Energy's Residential Smart Saver[®] HVAC Program as it was administered in Ohio and Kentucky. The evaluation was conducted by TecMarket Works and subcontractor Matthew Joyce.

Summary of the Evaluation

This document presents the process evaluation report for Duke Energy's Smart Saver HVAC Program as it was administered in Ohio and Kentucky. The evaluation was conducted by TecMarket Works and Matthew Joyce. The interview and survey instruments were developed by TecMarket Works and Matthew Joyce. The customer survey was administered and analyzed by TecMarket Works. Matthew Joyce conducted in-depth interviews with program managers and trade allies, as well as the trade ally survey.

Evaluation Objectives

This report's objectives are to document program operations and provide insights to help Duke Energy and other interested parties to evaluate the program as it is currently administered. The report evaluates current processes, considers trade ally perspectives, and assesses participant feedback in order to diagnose issues and present recommendations for changes intended to increase energy savings, improve operational efficiencies, and enhance trade ally and customer satisfaction.

Description and Purpose of Program

The Duke Energy Residential Smart Saver HVAC program encourages the installation of higher efficiency heating and cooling units in new and existing homes. Residential customers receive rebates of \$200 on qualified purchases, with an additional \$100 incentive going directly to the participating HVAC contractor or dealer. New home builders who install qualified equipment are eligible for rebates of \$300.

Duke Energy contracts with a third-party vendor, GoodCents, that is responsible for daily administration of the program, including HVAC dealer and contractor recruitment, call center operations, rebate application processing and payments, and quality assurance. Participating trade allies discuss the program with Duke Energy customers who are considering the purchase of a replacement air conditioner or heat pump. At the point of sale, the trade ally presents the \$200 incentive for selecting the high efficiency equipment option. After the trade ally installs the qualifying unit, they fill out a rebate application form and submit it with a copy of the invoice and a certificate from the American Heating and Refrigeration Institute (AHRI). GoodCents processes the paperwork and distributes the respective \$100 and \$200 checks by mail within 45 days. New home builders can opt to keep their \$300 incentives or pass them along to the home buyers.

Program Eligibility

Equipment

New equipment eligible for a Smart \$aver rebate includes²:

- Air conditioners (AC) of 14 SEER³ or greater with an electronically commutative (ECM) fan on the indoor unit
- Heat pumps (HP) that are at least 14 SEER with an ECM fan on the indoor unit
- Geothermal heat pumps that are 10.5 SEER with an ECM fan on the indoor unit

These efficiency standards comply with the US Department of Energy's standards for split air conditioning systems and heat pumps set for an effective date of January 1, 2015.

The program does not mandate pricing requirements, nor does it specify the brand of HVAC equipment. However, it does limit the types of systems permitted under program rules. These include: heat pump or AC split systems, HP or AC single package (self-contained) systems, and geothermal heat pumps, including direct geo exchange systems. Ineligible systems include: through-the-wall room HP or AC, window HP or AC, mini split and multi split HP or AC, portable HP or AC, evaporative AC, natural gas or oil furnace, or boilers.

Customers

Incentives for qualifying equipment are available to Duke Energy electric customers with active accounts who reside in individually metered single family homes, condominiums, townhomes, duplexes or manufactured homes on permanent foundations. Apartments, mobile homes, and multi-family homes (three or more units) are not eligible.

Trade Allies

Qualifying trade allies must complete a one-page program application form and provide a copy of a current certificate of insurance and a tax identification number via an IRS W9 form, and a Kentucky contractor's license number if they operate in that state. Once registered, trade allies can file rebate applications in more than one Duke Energy service territory provided that they comply with licensing rules for that state.

Customers who opt to self-install a qualifying HVAC system are also eligible for the incentive, if they complete the trade ally registration form and submit the required documentation.

Program Goals and Participation

While the Smart \$aver HVAC Program has been operational in Ohio and Kentucky for many years, a new vendor, GoodCents, undertook administration of daily program operations beginning on February 15, 2012. For the purposes of this evaluation, February 15, 2012 is considered the starting period for the management section of the evaluation.

² The Smart \$aver program offers additional incentives for HVAC maintenance and building envelope retrofits under a separate regulatory filing.

³ Seasonal Energy Efficiency Ratio (SEER)

For the time period of February 15 to December 31, 2012, Duke Energy set an Ohio program participation goal of 3,397 rebate applications for qualifying equipment. Actual program performance during that time achieved 4,036, representing 119% of goal for the year and an average of 88 measures per week. During that same time frame the goal for Kentucky was 1,385 applications, while the actuals were 621, representing 45% of goal, with an average of 14 measures per week.

For the 2013 calendar year the program participation target for Ohio was 3,562 applications with year to date performance of 1,739 applications. This represents 49% of the annual goal and an average of 58 applications per week. In nearby Kentucky, the goal was set for 1,459 qualifying rebate installations during the same time period. As of June 30, 2013 the program had delivered 298, representing 20% of goal with an average of 10 measures per week. Year over year performance for Ohio and Kentucky are shown in the table below.

Table 1. Annual Program Performance toward Goals

State	Year	Goal	Actuals	% of Goal	Average # measures per week
OH	Feb 15 – Dec 31, 2102	3,397	4,036	119%	88
OH	Jan 1 – Jun 30, 2013	3,562	1,739	49%	58
KY	Feb 15 – Dec 31, 2102	1,385	621	45%	14
KY	Jan 1 – Jun 30, 2013	1,459	298	20%	10

Methodology

Overview of the Evaluation Approach

The process evaluation consists of three elements: management interviews, trade ally interviews, and participant surveys.

Study Methodology

Management Interviews

Between June and September of 2013, TecMarket Works interviewed three representatives from Duke Energy, including the product manager, assistant product manager, and marketing coordinator. Three representatives from GoodCents were also interviewed, including the sales manager, rebate director, and the director of business solutions, who oversees call center operations subcontracted to ProCore Solutions.

In order to identify any implementation issues and discuss opportunities for improvement, these interviews considered:

- program design,
- execution,
- operations,
- trade ally activities and perspectives,
- interactions between staff, trade allies, and customers,
- data tracking and transfer methods, and
- personal experiences.

Interview guides were used to ensure a full and complete battery of questions were addressed with the interview subjects. Sample interview guides are shown in *Appendix A: Management Interview Instrument*.

Trade Ally Interviews

During August and September of 2013 TecMarket Works interviewed ten participating Residential Smart Saver trade allies from Ohio and ten from Kentucky. Interviews were conducted with company representatives who identified themselves as the person within their company who has the most experience with the program. Job positions included: owner, general manager, office manager, sales manager, and lead salesperson.

These qualitative interviews covered program operations and changes over time, aspects of trade allies' involvement, incentive levels, covered technologies, program requirements for participation, and the program's influence on high efficiency unit sales from the trade allies' perspectives. Interviews were conducted by telephone and lasted between 15 and 45 minutes. The interview guide can be found in *Appendix B: Trade Ally Interview Instrument*.

Trade Ally Survey

To supplement the qualitative interviews, TecMarket Works also completed a quantitative study via a telephone survey of 80 Residential Smart Saver trade allies selected at random from a

combined list of 313 participating Ohio trade allies and 51 Kentucky trade allies. The survey instrument can be found in *Appendix C: HVAC Trade Ally Survey Instrument*.

Participant Surveys

This survey focused on customers who, according to program tracking records, received a rebate from Duke Energy for the purchase of a new, more efficient central air conditioner or heat pump between the dates of January 1, 2012 and June 28, 2013.

Data collection methods, sample sizes, and sampling methodology

Management Interviews

Interviews and follow up exchanges were conducted by phone with six staff members from Duke Energy and GoodCents. Conversations ranged from half an hour to two and half hours. The interview instrument can be seen in *Appendix A: Management Interview Instrument*.

Trade Ally Interviews

Ten Residential Smart Saver trade allies were interviewed by telephone in August and September of 2013 from a list of 313 participating Ohio trade allies and 51 Kentucky trade allies. Those interviewed represented a spectrum of participation levels, ranging from between one and 1,302 rebate applications per year. A copy of the interview questions can be seen in *Appendix B: Trade Ally Interview Instrument*.

Trade Ally Survey

Eighty Residential Smart Saver trade allies were randomly selected for a telephone survey from a list of 364 trade allies whose businesses are based in Ohio and Kentucky. Those interviewed represented a spectrum of participation levels, ranging from between one and 1,302 rebate applications per year. A sample survey can be seen in *Appendix C: HVAC Trade Ally Survey Instrument*.

Participant Surveys

A sample list of 13,990 customer records was provided by Duke Energy (participants' rebated installation dates range from January 2012 to June 2013). After removing duplicate records, opt-outs, non-residential accounts and records with missing contact information, the sample size was 5,424 dial-able records (4,666 records for Ohio and 758 records for Kentucky). Surveys were conducted by telephone.

Number of completes and sample disposition for each data collection effort

Management Interviews

Between June and September of 2013, six out of six management interviews were completed representing a 100% completion rate.

Trade Ally Interviews

From a combined list of 364 records, 20 trade allies were contacted for qualitative phone interviews in August and September of 2013.

Trade Ally Survey

From a combined list of 364 records, 80 trade allies were contacted for a quantitative phone survey in August and September of 2013.

Participant Surveys

From the sample list of 5,424 usable records, 1,593 participants were called between July 23 and August 14, 2013, and a total of 161 usable telephone surveys were completed yielding a response rate of 10.1% (161 out of 1,593). Of the 161 completed interviews, 81 were conducted with participants who received rebates for installing new heat pumps, and 80 were conducted with participants who received rebates for new central air conditioning.

Summary of the Evaluation Data

The process evaluation findings presented in this report were analyzed using interview and survey data obtained from participants and stakeholders in the HVAC program as presented in Table 2 below.

Table 2. Evaluation Date Ranges

Evaluation Component	Start Date of Participation	End Date of Participation	Dates of Data Collection	Dates of Analysis
Duke Energy and Vendor Interviews	Feb 2012	Sept 2013	June - Sept 2013	Aug – Sept 2013
Trade Ally Interviews	Feb 2012	Sept 2013	Aug – Sept 2013	Sept 2013
Trade Ally Surveys	Feb 2012	Sept 2013	Aug – Sept 2013	Sept 2013
Participant CAC Surveys	Jan 3, 2012	July 5, 2013	July 23 – Aug 12, 2013	Aug – Sept 2013
Participant Heat Pump Surveys	Jan 3, 2012	July 5, 2013	July 24 – Aug 14, 2013	Aug – Sept 2013

Expected and achieved precision

Participant Surveys

The survey sample methodology had an expected precision of 90% +/- 6.4% and an achieved precision of 90% +/- 6.4%.

Management Interviews

Program Operations and Oversight

The Duke Energy Smart Saver HVAC Program is a joint effort between Duke Energy and GoodCents, a third party vendor from Atlanta, GA. Duke Energy provides the overall administration of the program, including strategic guidance, vendor oversight, utility-based marketing to residential customers, rebate payment auditing, and overall quality assurance.

Trade ally relations and day-to-day implementation is contracted to GoodCents, which handles all operational functions including: trade ally outreach and recruiting, trade ally marketing materials, call center support for trade allies and customers, rebate application processing, quality assurance, and payment processing.

Although the Smart Saver HVAC Program has operated in Ohio and Kentucky for years, Duke Energy opted to switch third party vendors after an extensive RFP process. GoodCents was awarded the contract in 2011, and on February 15, 2012 it assumed operational control of all program activities in Ohio, Kentucky, Indiana, North Carolina, and South Carolina. Only those activities in Ohio and Kentucky are discussed within this evaluation.

Duke Energy Marketing

Because new HVAC equipment purchases happen infrequently and because new sales are often prompted by malfunctions of existing equipment, Duke Energy does not devote significant budget to marketing the program directly to its residential customers. The utility's website offers information about the program and provides a toll free phone number to a GoodCents-staffed call center that provides additional information.

The program's initial web page is reachable within two clicks of the home page via standard website navigation. The program's main web page is visually simple with a single graphic of a programmable thermostat and six primary links leading to additional information. The first link leads to more information about the \$200 customer incentive for new equipment installations, while two links provide further information on other rebates for an HVAC Health Check (\$50) and Insulate and Seal (\$100-\$250), which are not covered in this evaluation⁴. Additional links take site visitors to web pages discussing energy efficiency tips, how to find a participating contractor, and how to become a trade ally.

The HVAC Install web page provides multiple tabs with a program overview, eligibility requirements and program rules, frequently asked questions, and still deeper links for more information regarding heating costs and comparisons and an online energy savings calculator.

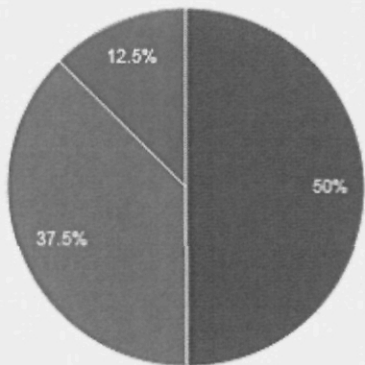
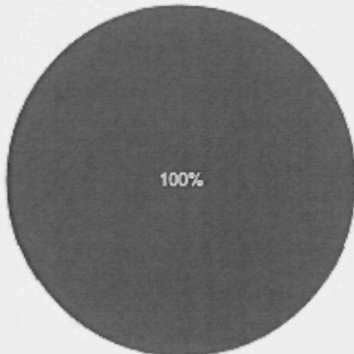
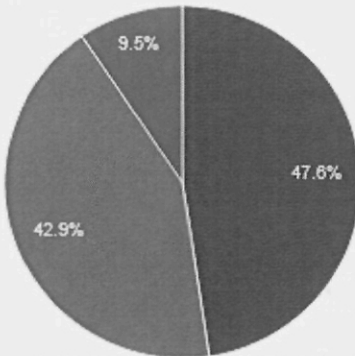
Duke Energy's website tracking data reveals that the Kentucky Smart Saver HVAC pages had 1,006 visitors and an average time of 35 seconds on the page during the interval between June 1 and December 31, 2012 when records were tracked. Between January 1 and September 20, 2013 the program had 4,373 web page visits for an average of 55 seconds on the page. During 2012, referrals from Duke's Energy online services (OLS) accounted for half (50%) of all page visits,

⁴ The evaluation of the Residential Smart Saver Additional Measures program will be conducted separately.

while direct entry of the URL (38.7%) and organic search (via Google, Yahoo, etc.); 12.5% accounted for the remainder. In 2013 direct entry of the program URL accounted for 100% of site visits. This finding seems improbable, but is accurate, according to Google Analytics website tracking records.

During 2013, Ohio web page visits totaled 13,818 with an average of 55 seconds per page. Traffic sources included direct entry of the URL (47.6%), organic search (42.9%), and referrals from OLS (9.5%). No website tracking data was provided for 2012. The table below provides a graphic comparison of traffic sources.

Table 3. Website Traffic Sources

KY Web Traffic June 1 to Dec 31 2012	KY Web Traffic Jan 1 to Sept 20, 2013
■ referral ■ direct ■ organic 	■ direct 
OH Web Traffic June 1 to Dec 31 2012	OH Web Traffic Jan 1 to Sept 20, 2013
NA	■ direct ■ organic ■ referral 

Trade Ally Network

Overview

Duke Energy's network of trade allies—state licensed and registered HVAC dealers and contractors—serves as the primary promotional vehicle for the Smart Saver HVAC Program. Trade allies act as the initial point of contact for Duke Energy residential customers who are interested in purchasing new HVAC equipment. The trade allies introduce Duke Energy

customers to the program as they educate homeowners about the benefits of selecting high efficiency equipment and the financial incentives offered by their utility to reduce the customer's overall purchase cost and thus encourage adoption. The Duke Energy rebate is often presented in conjunction with other financial incentives, such as rebates offered by manufacturers and any state and federal tax credits. If the customer opts to purchase qualifying equipment, then after the installation has been completed, the trade ally prepares the rebate application on behalf of the customer and sends it to GoodCents for processing and payment. Once approved, the customer will receive \$200 and the trade ally will earn \$100. Checks are mailed within 45 days of receiving the rebate applications.

The nature of using trade allies to present the program to Duke Energy's customers influences program freeridership because in most instances customers are unaware of the rebate and undoubtedly some percentage of customers would opt to acquire the more efficient equipment regardless of the financial incentive offered by Duke Energy. As a result, freerider analysis focuses on the actions of the trade ally and what they report their customers would likely elect to buy without the rebate. This is discussed in more detail in the *Trade Ally Survey* section of this evaluation.

Transition to New Vendor

As noted earlier in this evaluation, GoodCents assumed operational control of Duke Energy's previously existing program on February 15, 2012. This handoff from the previous third party vendor presented opportunities and challenges during the transition period.

One new opportunity was the chance to change the program's trade ally record keeping. The previous third party vendor provided GoodCents with the existing program records, including a flat file containing the contact information of all trade allies that had previously registered to participate in the program. Duke Energy took the opportunity to update these trade ally contacts by requiring trade allies to reregister to participate in the program by providing up-to-date contact information and a clear indication regarding whether the trade ally incentive checks were to go to the company or directly to the employee. The utility also changed the sign-up rules. Now in addition to the previously required a tax identification number via an IRS W9 form, the registrants must provide proof of insurance, as well as a Kentucky contractor license number, if they operate in that state.

This decision necessitated that GoodCents contact every name on the list to inform them of the changes. As a result GoodCents reached out to all viable contacts via mail, website notices, call center scripting updates, as well as email, telephone, fax, and personal visits by GoodCents trade ally representatives. The messaging welcomed the trade allies to the new program, informed them of the need to reregister, noted the new terms and conditions, explained the new rebate application process, and provided directions for how to obtain and submit the new forms.

Duke Energy originally anticipated that this transition phase would take 60-90 days, but trade ally compliance was slower than originally scheduled. Both Duke Energy and GoodCents reported that the majority of trade allies made the transition readily enough, but among the remainder there was confusion and resistance, particularly amidst those who continued to ignore repeated notices delivered each time they submitted a rebate application to the old third party vendor's address or fax number. As a result the transition period took until December 31, 2012,

which was when Duke Energy and GoodCents stated that they would no longer accept rebate applications from trade allies that had not reregistered for the program. The end of the year was deemed a reasonable cut off. Any trade allies who did not comply were thereafter considered inactive in the program. Any subsequent rebate applications submitted by inactive trade allies were rejected with a notification being sent to both the trade ally and the Duke Energy customer explaining that the rebates would remain in a "pending" status until the trade ally registered for the program.

GoodCents also provided Duke Energy with other enhancements for the program, including a web portal for trade ally use, an expanded trade ally web search tool, and increased quality assurance field staffing (see *Quality Assurance*).

The trade ally web portal, found at <http://www.dukeressmartsaver.com>, provides a number of online services to assist trade allies who are working with the Smart \$aver program. Once the trade allies register for the program, they can use the web portal to peruse program requirements, find training materials, order marketing collateral, submit rebate applications, and review the status of previously submitted applications. They can also update their contact information, tax ID, or insurance documentation, and apply to participate in the other Smart \$aver programs: Health Check and Insulate and Seal. The web portal also offers announcements, newsletters, and updates regarding changes in the program. The web portal is maintained by GoodCents. Unlike the Duke Energy website, the vendor does not track web traffic statistics. Nonetheless, awareness of the portal and use by trade allies appears to be limited despite the rich set of tools provided and the potential to save time and money through their adoption.

Another enhancement to the program was an updated internet search tool featured on Duke Energy website. The tool enables customers to enter their zip codes and then search for a list of participating trade allies in their areas who participate in Duke Energy's Smart \$aver HVAC rebate programs. This provides a helpful service to customers and marketing exposure for trade allies.

Trade Ally Recruiting and Relationship Management

Now that the trade ally registration records have been cleaned and updated, Duke Energy reports that there are 313 Ohio trade allies and 51 Kentucky trade allies participating in the program as of July 31, 2013. A number of these trade allies operate in both states. Some Indiana trade allies also operate in these territories, although they not included in the statewide tallies since for tracking purposes each business is only counted once based upon its official address. As no accurate initial tally of trade allies existed at the time GoodCents took over program operations, it is impossible to determine how much the program has grown since February 15, 2012. Duke Energy and GoodCents representatives estimate that they have added approximately 16 new trade allies to the Ohio network and 2 or 3 to the Kentucky network. This represents a 5% growth rate, which seems a reasonable estimate given 1) the culling of inactive participants, 2) the maturity of the program and 3) the existing market penetration Duke Energy had obtained during previous years of operation.

To maintain Duke Energy's existing trade ally relationships and to establish new ones, GoodCents employs a staff of six trade ally representatives (TARs) to manage the program throughout Duke Energy's Indiana, Ohio, Kentucky, North Carolina, and South Carolina

territories. Of these, one TAR operates in Ohio, while another covers Kentucky. Both these TARs also serve portions of Duke Energy's Indiana service territory.

The TARs engage with HVAC manufacturers, distributors, trade associations, and other groups to obtain lists and otherwise identify new potential trade allies. TARs then use email, phone, and in-person visits to reach out to prospective and existing trade allies to promote the program and encourage prospects to join the network. Strategy dictates that the TARs focus first on contacting those prospective HVAC firms with the greatest market reach, but they also engage with smaller businesses that may only have the potential to file a few rebate applications each year. As a part of that process, TARs educate the would-be trade allies about why selling energy efficiency helps their business and how partnering with Duke Energy helps to distinguish them from their competitors. Among the talking points frequently mentioned to prospective trade allies are:

- Easy to join,
- No contract required,
- No fees to participate,
- Increased visibility via listing on the Duke Energy website,
- Improved image and increased customer trust by being affiliated with Duke Energy,
- Differentiation from contractors who are not part of the Duke Energy trade ally network,
- Direct dealer payments that offset costs of filing rebate paperwork,
- Knowledge of and access to multiple Duke Energy rebates,
- The ability to make a larger sale by reducing the overall cost for customers to obtain a higher efficiency unit, and
- The advantage of bundling the Duke Energy rebate with other manufacturer rebates and government tax incentives for even greater savings.

Signing up for the program can be accomplished via a paper application or an online submission process. Upon receipt, GoodCents enters the data, confirms licensing and insurance requirements, and performs a background check on the applicants. Approvals occur every Monday. The trade ally's contact information is added to the searchable listing on the Duke Energy website at the same time. Access to the trade ally web portal can be initiated as soon as the new member has been approved.

Once new companies join the trade ally network, the TARs ensure that they understand the program and the incentive requirements, as well as the proper process for submitting rebate applications for approval and payment. If necessary, TARs can guide them through the program paperwork and help to resolve any difficulties that arise during the rebate process or during quality assurance activities in the field.

To ensure that the TARs can assist the trade allies in all technical and business aspects of the Duke Energy program, GoodCents requires that its TARs obtain and hold certifications from 1) the Building Performance Institute (BPI), a trade association for building science professionals, and 2) North American Technician Excellence, Inc. (NATE), a non-profit certification program for the HVAC industry. Likewise, GoodCents also trains its TARs in sales and marketing so they can advise and coach their respective trade allies to have more successful point of sale conversations with residential customers.

In the rare event of a trade ally or customer complaint, TARs must respond within one business day and resolve the issue within three business days. No exceptions to this policy have occurred, and all TAR activities were reported by Duke Energy and GoodCents to be operationally effective. TecMarket Works considers this level of support to be an exemplary best practice for this field.

While each TAR is assigned a specific geographic region, they attend weekly group teleconferences or live meetings with the Duke Energy product manager and their supervisor in order to receive training updates, discuss recent developments in their territories, and review progress toward individual and team goals regarding monthly and annual targets for "Duke Energy market stimulation."

GoodCents TAR annual goals for 2013 in Kentucky included a combined 1,459 rebate applications for replacement heat pumps and air conditioners, and 45 trade ally contacts (although this contact goal also includes potential conversations regarding the separately filed but jointly managed HVAC Health Check and Tune and Seal programs). As of June 30, 2013 trade allies had submitted 298 applications, representing 20% of the year end goal. Between February 15 and December 31, 2012, trade allies submitted 621 applications toward a GoodCents target of 1,385, representing 45% of program goal.

For Ohio, the 2013 annual goals were set at 3,562 combined rebate applications for replacement heat pumps and air conditions and 77 trade ally contacts. As of June 30, 2013, 1,739 applications had been turned in. This represented 49% of the annual goal. During 2012, a total of 4,036 applications were submitted, which is 119% of goal.

Applications & Rebates

GoodCents processes rebate applications for Duke Energy's service territory across five states: Indiana, Ohio, Kentucky, North Carolina, and South Carolina.

Rebate Applications

The rebate application process requires trade allies to provide a two-page application form, matching certificate obtained from AHRI, and a copy of the customer invoice.

PDF copies of the rebate application form can be downloaded from the program's online trade ally web portal and from an in-text link on the Smart Saver website found at <http://www.duke-energy.com/indiana/savings/hvac-install.asp>. The rebate application form can be filled out electronically or it can be printed out and filled in by hand.

The rebate applications forms collect more information than merely 1) the trade ally's contact information, 2) the customer's name, service address and contact information, and 3) the customer's Duke Energy account number. In addition to this basic information, which is collected on the first page of the application, the GoodCents form also requires the trade ally to provide a second page of detailed information regarding the new unit being installed, the old unit being removed, and specific details regarding the customer's home characteristics. The required equipment details include the make, model, and serial number of the new and used units, as well

as the tonnage, efficiency ratings, and AHRI numbers of both systems. Also required are household characteristics including the type of home (single family, home/condo, etc.), year of construction, square footage, number of stories above grade, foundation type, duct location, and number of HVAC systems in the home. A sample rebate application form is shown in *Appendix D: Sample Rebate Application Form*.

The additional information collected on the forms is used by Duke Energy and GoodCents for a variety of reasons, including better understanding changing market trends such as gauging the likelihood of early HVAC equipment replacement. However according to the trade allies that we spoke with, the reasons they need to supply this level of detail are less than clear to many of them, which has caused complaints among some participants. These findings are discussed in more detail in the *Rebate Applications and Associated Paperwork* section below.

Trade ally rebate applications must be accompanied by a copy of the customer invoice. The Duke Energy program does not specify that invoices need to be signed by customers nor that the invoices must be paid at the time the paperwork is submitted. Nonetheless, TecMarket Works identified some confusion about this among GoodCents staff and among some of the trade allies that we spoke with. As a result, some trade allies reported that they were spending extra time gathering customer signatures; waiting for customer payments before filing for the rebates; and in some instances falsely marking unpaid invoices as having been paid when the paperwork was submitted. These things can be eliminated or at least significantly diminished if the program's invoice requirements are clarified and communicated to GoodCents staff and participating trade allies.

Rebate Processing and Payment

Trade allies can submit their applications and supporting documents online via the web portal, email, fax, or mail. Although GoodCents did not provide actual data regarding trade ally preferred avenues for submitting their application paperwork, the GoodCents rebate director estimated that 80% of them use the fax number, while 15% use email and 4% opt for mail. The remaining 1% utilizes direct online submissions via the web portal, which is the only method that bypasses the need to manually transfer the data from the forms to the GoodCents system.

To keep turnaround times short, GoodCents has three days to enter the submitted applications into its system. For each new application, the rebate processing team 1) verifies the Duke Energy account number and customer name, 2) confirms that the AHRI certificate matches the serial number and model number on the invoice, and 3) that the system meets the program requirements.

Once entered into the GoodCents system, each application is categorized as 1) complete and qualified, 2) missing information, or 3) does not qualify. Complete and qualified applications are bundled together for payment. Incomplete applications result in "status pending" letters to trade allies and customers, while non-qualifying applications generate rejection letters. In each case, the letters state the issue that requires attention, suggest the necessary remedy, and set a deadline of 45 days for resolving the matter. The rebate processing team posts status updates on the trade ally web portal and makes phone calls in an effort to obtain the missing information and rectify the situation as quickly as possible.

During the 2012 transition period, program rules allowed trade allies to submit rebate applications to the old fax number and mailing address of the previous vendor. These applications were logged by the former vendor and then bundled and mailed to GoodCents on a weekly basis. As a result, 14 or more extra days of processing and mailing time could be added for handling these applications. If applications were emailed to the old vendor, those digital application forms were automatically redirected to GoodCents. With this extra step eliminated as of January 1, 2013, rebate processing times are now generally less than two weeks.

Under the current rebate processing system, GoodCents batches all approved rebate applications and sends them to the Duke Energy program manager for review on a weekly basis. By agreement, the utility has five days to approve the applications. After which, GoodCents authorizes Wells Fargo to cut and mail checks to customers and trade allies. Service level agreements (SLA) require that GoodCents issue checks within 10 days of determining that the application is complete and qualified. However, this 10-day period includes the five days that Duke Energy has to conduct final approval.

Since the end of the transition period when all new rules were fully in effect, check payment times have dropped markedly. In May 2013, the number of days between the day the application was submitted to the day the rebate check was mailed averaged 15.9 days. That average went down to 13.8 in June of 2013, and dropped again to an average of 12.1 days in July of 2013. Actual processing times for many trade allies and customers are often 10 days or less, since these average times combine the time it takes to process all applications that are submitted, including the extra time that it takes to conduct quality assurance inspections (which can take up to 30 days). Once the time for quality assurance is deducted from that average, GoodCents has met the time-to-mailing requirement "most of the time." It has consistently met or bested its SLA for application processing.

While these processing times are longer than the average of eight days under the previous program vendor, the current overall wait times for payment are noticeably shorter than the 45 day payment timeframe advertised to trade allies and customers. While most customers seem satisfied with these timeframes, GoodCents indicates that its field and phone representatives have heard complaints among some trade allies who were familiar with the faster payment times in the past. This finding is discussed in more detail in the *Rebate Checks* section below.

Quality Assurance

The program maintains multiple layers of quality assurance. As discussed above, the first level applies to accuracy of the rebate submissions. If an application is incomplete or incorrectly filled out, it is placed in "pending" status while the trade ally is contacted to rectify the situation. However, even complete applications for qualifying equipment are subject to further review.

Program rules stipulate that prior to payment all participating trade allies are subject to periodic onsite quality control inspections of the equipment to ensure compliance. In practice, GoodCents consistently inspects the first five applications that every new or re-registering trade ally submits. After trade allies complete that probationary phase their rebate applications are pooled together with those from all other trade allies and a random sample of 5% of all rebate applications are inspected in each state service territory. This quality assurance applies at the level of the

participating HVAC company. It is not tracked at the level of individual sales people and HVAC installers.

According to GoodCents records, during the month of May 2013, Ohio trade allies filed for 223 air conditioners and 151 heat pumps, totaling 374 applications. Of these GoodCents inspected 19, which is exactly 5%. In Kentucky trade allies installed 34 air conditioners and 20 heat pumps for a total of 54 applications. Of these 19 (15%) were inspected. This is higher than 5% quota due to the need to inspect the first five units for probationary companies.

To handle this volume of inspections, GoodCents staffs four quality control inspectors throughout Duke Energy's five state service territory, including one inspector based in Indianapolis and another in Cincinnati. These NATE and BPI certified inspectors visit the customer's home to ensure that a qualifying unit has been installed and that the make, model, and serial number match the application. Inspectors are given 30 days to conduct their site visit, although most are completed sooner than that. GoodCents indicates that their inspection success rate is "98-99%" with the vast majority of noncompliance issues arising due to a mismatch or typo on the paperwork. On a very rare occasion, the paperwork may have been filed before the unit was actually installed. If an installation does not pass the quality control inspection, the trade ally is notified. They then have 30 days to submit the correct paperwork or otherwise remediate the problem and request another inspection. If the inspection fails again the trade ally would be placed on program probation and receive additional program training. No contractors have been suspended since GoodCents began administration of the program.

While Duke Energy retains the option to conduct its own quality assurance testing, the product manager has not felt the need to do so. However, the utility does take customer satisfaction seriously. To that end, in May of 2013 it initiated a voluntary satisfaction survey, whereby customers are invited to provide feedback on the program via an internet-based form. At the time of the process evaluation interviews, only a handful of responses had been submitted so analysis of the data was not yet possible.

Call Center Operations

A single dedicated toll free phone number provides call center support for all participating trade allies and customers in Duke Energy's five service territories. Upon answering calls, customer service representatives (CSRs) first identify the program and then seek to determine if the caller is a customer or a trade ally. With this established they commonly field frequently asked questions about how to complete the application form, qualifying equipment, incentives offered, and the status of rebate payments. For rebate status questions the CSRs can check the GoodCents rebate database which is updated daily. For more specific inquiries regarding rebate application issues, the questions are referred to the rebate process team at GoodCents.

Although GoodCents maintains overall contractual responsibility for trade ally and customer contact activities, actual call center operations are subcontracted to ProCore Solutions of Marietta, GA. The transition from the prior call center provider to ProCore Solutions occurred simultaneously with the transition to GoodCents. On February 15, 2012 the previously established toll free phone number was transferred to the new operational unit. Both Duke

Energy and GoodCents report that the transition was seamless from the point of view of inbound callers.

Because the program changed very little in the transition, ProCore's CSRs were provided with help files and well proven scripts developed under the previous call center provider. The CSRs also received advance training regarding not only for the program specific measures and requirements, but also a primer on residential energy building science, the comfort and whole house benefits of each measure offered, and the increased savings opportunities for implementing multiple measures.

Call center service level agreements require 90% of calls to be answered within 20 seconds and an abandon rate of less than 5%. No issues with these metrics were reported. While there is no metric for call handling time, calls average between four and a half to five minutes for English language conversations and one to one and a half minutes for Spanish conversations. No explanation was provided as to why the Spanish conversations were of a noticeably shorter average duration.

All calls are recorded and call quality is carefully monitored by ProCore supervisors, the GoodCents director of business operations, and the Duke Energy product manager, each of whom can access the recordings online. This quality assurance team meets monthly to engage in co-calibration sessions during which each party scores the same call so that results can be compared and qualitative observations standardized. Meanwhile, ProCore and GoodCents monitor additional calls at random. These quality assurance measures have resulted in some changes in scripting and call handling practices, but the improvements have predominantly been in response to issues arising from how to best deal with Smart Saver's additional measures, which are not being reviewed for this evaluation.

Working Relationships

The Duke Energy product manager indicated he is in daily contact with GoodCents representatives, while formal meetings occur on a scheduled basis. The program's management teams from Duke Energy and GoodCents meet monthly to set strategy, review performance, and adjust accordingly. Call center activities are also reviewed on a monthly basis. While the Duke Energy product manager joins the GoodCents trade ally representative meeting each week to stay abreast of current developments in the field.

The program's online data tracking and reporting systems are updated daily so the Duke Energy product manager can view a snapshot of key performance metrics at any time. Monthly reporting consists of trade ally and customer feedback, and financial reconciliation reports, including which checks have been cashed. Service level performance is also monitored monthly, although it is formally assessed on a quarterly basis.

Overall business relationships and communications are reported to be positive and functional. GoodCents indicates "Duke is fairly open to some of our out-of-box thinking, and we're willing to try different things." Duke Energy states: "Our working relationship is good. We don't always agree, but both companies want a successful program, and we continually work to find how to be aligned."

Evaluation Findings and Recommendations

Evaluation Findings

The Smart Saver Residential HVAC program is a mature, well-run program with a robust and well-informed trade ally network that spans Duke Energy's service territory in Ohio and Kentucky. Program design is well considered and provides financial incentives at the moment of highest influence in order to encourage the adoption of more efficient equipment.

While not without its challenges, the transition from the previous third party vendor to GoodCents was achieved without interruption of daily operations. The partnership between Duke Energy and GoodCents is strong, and GoodCents' depth of experience in HVAC program administration is readily apparent in the active engagement of trade allies in the field, as well as in the smooth functioning of rebate processing and call center activities.

Despite the well-run nature of the program, its participation numbers are not meeting Duke Energy's goals for 2013. Performance during 2012 was stronger, particularly in Ohio which at the time still featured the rebate for high efficiency furnaces throughout 2012. That rebate was eliminated due to changes in funding availability associated with a residential rider for natural gas in Ohio.

Actual performance numbers for Ohio during 2012 show that the program drew 4,036 rebate applications (for air conditioners, heat pumps, AND gas furnaces) toward a target of 3,397, representing 119% of goal and an average of 88 measures per week. Year-to-date performance between Jan 1 and June 30 of 2013 is tracking slower, with the trade ally network delivering 1,739 rebate applications (for air conditions and heat pumps, but NOT furnaces) at an average of 58 measures per week by June 30, 2013 toward an annual goal of 3,562 (49%).

Actual performance numbers of Kentucky indicate that during 2012 trade allies submitted 621 rebate applications (for air conditioners and heat pumps) toward a goal of 1,385, representing 45% of goal and an average of 14 per week. Performance between January 1 and June 30, 2013 showed 298 applications toward a goal of 1,459, which is an average of 10 per week and 20% of goal.

Reasons for the limited performance appear to be manifold. Duke Energy notes that heat pump sales have dropped noticeably in Kentucky as a higher percentage of customers are opting to fuel switch to gas furnaces due to lower perceived operating costs. This was less of a problem in Ohio during 2012 when the program offered rebates for gas furnaces. In both Ohio and Kentucky, challenging economic conditions among residential customers are also causing them to opt for extended equipment repairs rather than equipment replacement. Furthermore, a reduction in federal stimulus dollars for the HVAC market appears to be having a contributory financial effect. On a more limited, but directly controllable level, equipment requirements for an ECM fan may be influencing customer decisions. And trade ally concerns over rebate processing times and confusion regarding paperwork requirements may also be having a small effect.

Recommendations

Upon assuming administration of the program, GoodCents provided a number of notable improvements, including all the tools provided on the trade ally web portal. Likewise, Duke Energy's decisions to update trade ally contact information, track trade ally participation levels, and eliminate the pre-funding process have all increased visibility and enhanced oversight of program transactions. Therefore, the following recommendations should be considered additional suggestions to further improve the program.

- Consider increasing overall program energy savings by eliminating the indoor ECM motor requirement in favor of increased efficiency ratings on the new outdoor equipment.
- Alternately, consider separating the EMC fan requirement. Doing so would help to increase the installation of high efficiency heat pumps and air conditioners since it would eliminate lost opportunities where customers are willing to upgrade air conditioners or heat pumps, but not willing to pay to upgrade still functioning furnace blowers. This would be particularly helpful in areas where oil or natural gas-fired furnaces are prevalent.
- Another option for equipment and incentive changes includes the potential for a tiered rebate system whereby higher efficiency equipment garners higher financial incentives.
- The nature of the HVAC marketplace is such that the effectiveness of the rebate amounts offered by the program is influenced by shifting economic conditions and the additional financial offsets of supplemental incentives offered by the federal government, manufacturers, other utilities, and the trade allies themselves. Therefore, TecMarket Works encourages close monitoring of this context in order to adjust rebate offerings as necessary to achieve program energy savings targets while maintaining overall cost effectiveness.
- The trade ally web portal provides participating HVAC contractors and dealers with a foundational set of tools that can not only simplify their interactions with the program, but also lower program administration costs by reducing the number of trade allies phoning the call center to check the status of rebates and eliminating the need to manually enter application data by using the online submission system. However, trade ally adoption levels of the web portal appear to be low. Therefore we recommend that GoodCents TARs widely promote use of the web portal among trade allies. We also encourage the installation and use of web tracking software, such as Google Analytics, in order to monitor internet traffic patterns and the volume of the trade allies visiting the website, since such insights may provide opportunities for further improvements.
- Confusion regarding the erroneous need for trade allies to submit paid or signed customer invoices can be eliminated through increased clarification and communication about the specific requirements for program paperwork.
- While the program is designed to work directly with trade allies in order to provide the highest degree of influence at the point at which customers are making their purchasing decision, other opportunities for heightened awareness and interest are also possible.

Therefore, Duke Energy may consider increasing its marketing and educational outreach to residential customers, either via direct marketing, at events where home owners congregate, such as home and garden shows, or through news stories or guest columns in print and digital media.

- We also encourage the program management team to look to the newly implemented internet-based feedback system to provide additional insights directly from customers and trade allies as those survey results become available.

Trade Ally Interviews

During August and September of 2013, TecMarket Works conducted phone interviews with participating Smart Saver trade allies, including 10 each in Ohio and Kentucky. Those interviewed identified themselves as the person within their company who has the most experience with the program. Job positions included: owner, general manager, office manager, sales manager, and lead salesperson.

Topics of these qualitative interviews covered program operations and changes over time, aspects of trade allies' involvement, incentive levels, covered technologies, program requirements for participation, and the program's influence on high efficiency unit sales from the trade allies' perspectives. Interviews lasted between 15 and 45 minutes. The interview guide can be found in *Appendix B: Trade Ally Interview Instrument*.

While feedback regarding the program was positive overall, all the trade allies that we interviewed found at least one area for improvement and most of them provided multiple examples. Areas for improvement included: the complexity of the rebate applications, consistency of enforcement, timing of payment checks, the service level of trade ally representatives, incentive levels, and equipment covered by the program. The results of these interviews are reported below.

Rebate Applications and Associated Paperwork

The rebate applications and associated paperwork were by far the largest source of trade ally complaints about the Smart Saver HVAC program. While detailed feedback is provided below, one central point resounds throughout: trade allies do not understand or appreciate why they are being asked to provide the level of detailed information required during the rebate application process. This lack of understanding fosters resentment and, in some extreme cases, a refusal to participate in the program. Therefore, in addition to making any specific changes as may be dictated by the below comments, TecMarket Works suggests that at a minimum, Duke Energy and GoodCents mount an effort to educate trade allies about which details are required, which are optional, and why the requested information is necessary. This educational effort alone may well help to alleviate a majority of trade ally complaints.

The Rebate Application Form

The size of the data entry boxes on the rebate application form caused a number of trade ally complaints. Below are statements quoted from the interviews.

- *The paper forms need to be bigger since the boxes are too small to fill out.*
- *The forms are poorly designed and should be redone.*

To rectify this situation a number of trade allies suggested that the program provide blank PDF documents that permit data entry. While such a blank PDF form can be downloaded from the trade ally web portal and the Duke Energy website, this trade ally was unaware of its existence, as were others that we spoke with during interviews and the survey discussed in *Trade Ally Survey* section below.

- *They should make the forms be digital PDFs. They're easier to fill out, read, save, and transfer.*

Required Information on Application Form

Feedback regarding the type and amount of information required on the form was extensive. It fell into two primary categories: HVAC-specific information and customer-specific information regarding their account numbers and home characteristics. Concerns ranged from challenges with the impracticality of locating serial numbers and other identifying information from the old units that are being replaced to issues obtaining customer account numbers and details regarding the home's age and its square footage. In some cases, even though a trade ally installed a qualifying unit, customer noncooperation resulted in no rebate application being filed. Representative quotes are shown below.

HVAC-Specific Information

A repeated issue of consternation among trade allies is the requirement that they provide the serial number and other identifying information on the old unit.

- *It's not practical to find and provide the old unit information. Our removal guys are task oriented when they're ripping them out. They're not thinking about paperwork and probably never will.*
- *The paperwork stinks. I try to be complete and accurate, but sometimes I just can't get the information they want. The markings on the old units are often faded beyond recognition.*
- *It used to be so easy. You just certified what you installed. Now they want the old equipment model/serial number and SEER rating. On something 30 years old, we often can't find that. Sometimes that number is literally not readable on a unit that old. Now they want the square footage on the house, how old the house is, and the duct work location. I don't know why they need all that information.*
- *They seem to ask for a lot of information without explaining the context of why they need it. We used to get \$300 for furnaces and another \$300 for AC. Then at the end of the year they stopped the furnace rebates so we stopped filling out that part of the paper work. But then we started getting rejected because we were not including it. Why do we need to include it, if they're not paying the rebate on it?*

Customer Account Numbers and House-Specific Information

- *The new paperwork has been something of an issue. It asks for things like year, heating square footage and stories above grade. We don't know those and they don't make sense. Why should we need to know heating square footage if we are installing air conditioning? My sales people don't keep track of these details.*
- *The old forms were so much easier to fill out. On the new forms we have to get the Duke account number and that delays it. The extra information they ask for slow us up since people don't want to give out the information on square footage and age of their home. I don't see why they need that. It seems intrusive to the customers.*

- *Sometimes homeowners don't fill out their part of the paperwork in time and they want extensions. That makes us look bad, even though it is their fault. You should allow extensions upon request.*
- *Basically it seems like they just decided that the information would be nice to have without considering the impact it has on people's time and their work flow.*

AHRI Numbers

While no trade allies expressed confusion about the program's requirement to provide documentation from AHRI, several did complain about the amount of effort required in order to obtain the requisite details from the AHRI website.

- *The AHRI and serial numbers are impossible to get. They just not available anymore for a 20 year old unit.*
- *AHRI web access is a problem.*
- *It's kind of difficult because I might not have that AHRI system with overall efficiency of the combined equipment.*

Paid Invoices

The erroneous belief that trade allies need to submit paid invoices along with their rebate applications was a point of difficulty for some trade allies. The program does require a copy of invoices, but it does not require the invoices to be paid at the time the rebate application is submitted. This confusion reveals a lack of clarity regarding the actual program requirements for the invoices that must accompany the rebate applications.

- *I can understand the need to send in a copy of the invoice, but our company has problems since we use duplicate forms and the company copy of the form doesn't come out very readable once it's been photocopied or faxed. So it's sort of an on-going problem or trying to make them more readable.*
- *I think the program is fine otherwise. It's frustrating to have to give all the piddly little things on the paperwork. Now we have to mark paid in full, and submit a copy of the invoice that has the pulled serial number written in hand. We wouldn't otherwise bother with those kinds of details just for our business. So the little things they keep coming back with are bothersome and it's become a much bigger job. The process just needs to be simpler.*

General Issues

While not citing specific areas for improvement, several trade allies made general comments about the inconvenience of the amount paperwork required during the rebate process.

- *Information they ask for is more time consuming than necessary. There are so many coordinating pieces that have to come together.*

- *We used to have an easier time with the forms when there was more openness about what was needed. I'd like it to be one page.*
- *The paperwork is a bit hinky. They should make it more self-explanatory.*
- *Make it less difficult with the forms.*
- *Change over to new applications was a bit problematic. I like an easier application if they could.*
- *It doesn't take a lot of time. Once we got used to it, it's not hard.*
- *The process is cumbersome. It has to all be done in a certain way and it's kind of a pain. I have to have the sheets that show equipment that qualifies with matching equipment.*

Submissions and Corrections of Rebate Applications

Compliance Requirements

After the level of detail required on the rebate application forms, the next most significant cause for dissention among trade allies was the program's strict compliance rules regarding the exact information required on the form. In some cases, trade allies reported being rejected due to clerical errors, incongruence of detail, and minor inaccuracies; in some instances for what seemed to be overly bureaucratic or petty details such as missing middle initials in customer names. Below is a representative quote:

- *They're too particular about making the paperwork exactly match the Duke account name down to the middle initial. I mean come on, if everything except the initial is the same, do they really think it's a different person? They should relax the rules on that part at the least.*

Despite these strict compliance requirements, other trade ally feedback reveals that the rules are not consistently enforced as shown by the comments below.

- *I just don't bother to include the AHRI numbers on the forms. Nor do I bother with the account numbers, and so far all my forms have been processed.*

Submission and Confirmation

Trade allies had few opinions about the rebate submission process. Two people offered suggestions for improvement, and these may have been due to a lack of familiarity with what was actually available with existing systems.

- *The new website seems to be updated regularly, but it is less than informative. It shows pending correct documentation but doesn't explain what is needed. Sometimes the GoodCents people will call and sometimes they won't so I need to call them. I wouldn't know if there was an issue unless I looked. So they should increase the amount of information on the website and set up some sort of a consistent system for notifying people about what is needed.*

- *They should make the forms be digital PDFs. They're easier to fill out, read, save, and transfer.*

Help with Corrections and Compliance

Despite the rigorous attention to detail required during the rebate submission process, trade allies praised the helpfulness of the representatives that they spoke with regarding any necessary corrections. Only one person felt critical of the phone support provided. All others were positively disposed to the customer service they received as shown by the comments below.

- *They aren't very helpful on the phone. When you're busy, you don't have time for bickering over tiny details. Just talk to me and tell me what you need. And they don't sometimes.*
- *Couple times I filled out paperwork wrong, and had to follow up. They didn't contact me. By then the customer's involved and it's a problem.*
- *I haven't really needed to call many times but it's okay. Smart Saver in Georgia is really pretty good.*
- *No issues at all.*
- *I have to follow up a lot. The people themselves are kind and helpful and they always call me back. They are great.*
- *They do call if there's a problem or concern and they are good.*
- *In the beginning we would call when we had questions and they are great.*
- *The GoodCents people are good on the phone.*
- *Their people are more communicative. The phone people are quite good.*
- *The phone and field people are great.*
- *They've improved in terms of helping us with any corrections that we need. The phone people are good.*
- *Sometimes when I send something in they disagree with something need to be changed, they call me and make me do something different that I didn't have to do before. They are great though. I've had no problems with them.*
- *Okay. I don't call much.*

Sending Noncompliance Notices to Customers

A small number of trade allies expressed concerns about the way that the program handles notifications regarding noncompliance. The main issue was that notifications sent directly to customers caused the trade allies challenges with their own customer relations. Although one quote to this effect is shown here, other similar thoughts were mentioned as parts of quotes shown elsewhere in this document.

- *If there is a problem with the rebate then GoodCents sends us and them [the customer] a letter. Then customers get mad at us and tell us we made a mistake, threatening us that if Duke doesn't pay them then we will need to. It's a mess that could be avoided if they'd just ask us first.*

Rebate Checks

Wait Times

Trade allies indicate that the waiting period between the points when they send in the rebate application paperwork and when the checks arrive typically varies from four to six weeks, with some trade allies reporting times of between six and eight weeks.⁵ For most respondents this seems a reasonable timeframe. For others, the perceived waiting period seems too long. For some people this occurred when rebate applications were being sent to the previous vendor and thus required forwarding.

Although this evaluation did not confirm the wait times by reviewing the application dates and the date of the rebate distributions, past experience in these types of studies indicate that trade allies and customers expect rebates to be promptly processed and paid and that wait times of a couple of weeks are acceptable, however wait times of longer than a couple of weeks begins to impact satisfaction scores.

Representative quotes regarding wait times include:

- *The checks seem a little slow coming and once in a while customers call us to ask when they'll arrive. We tell them we don't know. To manage their expectations we tell them it can take up six weeks. Otherwise customers are very positive about the program. We even had one referral because a customer was happy about their Duke rebate and told a neighbor.*
- *My main pet peeve is that my customers ask us all the time when their incentives are coming. We never know. We tell them four to six weeks, but the only way to find out is to email GoodCents and ask. Then they email back and then we can tell the customer. That's just not efficient. They should make it easier.*
- *In the first six months when GoodCents took over they were slow in processing checks. Sometimes up to two months it seems. But since June of 2012 we've been getting them within four to six weeks.*
- *I haven't heard any recent problems. They say four to six weeks so I tell people six to eight weeks and that's helped.*
- *If the application goes in correctly, it comes back fairly quickly. A lot is not how quickly they turn it back, but how backlogged we are.*

⁵ Earlier in the report, it was indicated that the total processing time from receipt of application to data entry to approval to the time the incentive checks were sent out was 13 business days. This 4-6 week wait time is therefore reasonable given that it includes time spent in transit for inbound and outbound mail.

- *The timing isn't bad. They say it takes about six to eight weeks to get the checks and that's usually accurate.*
- *It's much better than it was. It used to be eight to ten weeks and now it's usually within 30 days.*
- *It seems like we see ours within a month. It's fine.*
- *Sometimes the rebates take forever. Some get paid within a month but other times take much longer.*
- *We get our \$300 within 30 days.*
- *Sometimes the mail times seem slow. We see checks dated August 1 that arrive in the mail more than three weeks later.*
- *The payment process and timing are fine. (3)*

Rebate Checks

One trade ally also made comments about actual checks themselves. She appreciated the added detail provided on the checks, and made a suggestion that if several rebate checks were being sent at the same time that they be batched together in same envelope for mailing. Below is her direct quote.

- *Check processing is quick and easy. That has changed for the better. The checks they used to send didn't give much detail and now it has the name and property address. That helps. I would say they should just put them in one envelope though and not 20 or 30 separate envelopes when they need to send out that many all to one company. That's crazy. It costs them more in postage and it takes more time for me to open them.*

Covered Technologies

We also talked to the trade allies about the technologies covered by the program and other technologies that they felt should be included. The most frequent refrain cited throughout all the interviews was a request to resume rebates on gas furnaces, even if at higher efficiency levels. Otherwise, general opinion held that the current SEER level ratings for air conditioners and heat pumps was appropriate, although some trade allies felt that ECM motor requirement was problematic and a few requested additional coverage for heat pumps.

- *The type of equipment they cover is fair. Lowering efficiency standards would defeat purpose of it, but I'd like to see more flexibility on the types of equipment, like matching systems even if there is an ECM.*
- *They sometimes mean something different than we think with an ECM motor. You have to make sure this equipment meets their stipulation. Vectren gives an extra \$20 for a programmable thermostat. That makes a difference. Duke should cover that too.*
- *The equipment covered by the program is about right, but they should bring back rebates on high efficiency furnaces. They should also increase the rebates for geothermal. Dayton Power and Light pays \$1600. At \$200 Duke isn't even in the ball park.*

- *The 14 SEER rating is about right. Obviously we'd like it at 13, but it's better than 15. Although I do think they could offer more for geothermal heat pumps.*
- *I think Duke should resume offering rebates for high efficiency furnaces. They should also offer rebates for boilers if they're high enough efficiency. I don't have any issues with the ECM fans. Those make sense to me.*
- *It's just the top end stuff now. It used to be anything over 90 got rebates and now it doesn't. And now you need ECM variable speed motors so it's not as good.*
- *I would love it if they put back the high efficiency furnaces at 90%. Even 95% and above with ECM motors. That would help a lot. If customers buy a furnace and an AC they'll get money back and 12 months to pay for it. Those are very nice.*
- *It's a shame about the gas furnaces. If customers replace the furnace and it has an ECM they still can't get the rebate because it's gas.*
- *It's sad they dropped the gas furnaces from qualifying, and we are only working with AC. The furnace still needs to be changed out but in a lot of cases it won't qualify for Duke even though it's high efficiency.*
- *It would be nice to go back to the furnaces. That would help a lot.*
- *Gas furnace should be covered at 90%. That made it a lot easier to get the rebate going and there was more profit on the product. Duke should go back to 90% or better with 14 SEER and ECM motor.*
- *I think they should cover all heat pumps, not just the 15 SEER. And go back to the gas furnaces.*
- *Gas furnaces. On AC with 15 SEER you need a two stage motor anyway. Lot of the criteria you have to look at to tell if it qualifies (coil, blower, furnace, indoor, outdoor).*
- *Gas furnaces should be covered. (3)*
- *Duke should bring back rebates on high efficiency furnaces.*
- *The equipment covered by the program is good, although they should bring back the rebates on furnaces. Why not do rebates at 95% efficiency now?*
- *The equipment covered is the right choice, but we want them to bring back rebates on gas furnaces.*
- *The equipment covered is fine.*

Incentive Amounts

A few trade allies suggested raising incentive levels, but overall they were satisfied with the incentive amounts offered by program. Incentive amounts were explored in more detail during the quantitative survey process. Those findings are discussed in the *Trade Ally Survey* section below.

- *Duke would get more customers going for the high efficiency units if they raised the incentive levels. The Greater Cincinnati Energy Alliance and the Kentucky Home*

Performance Program used to have a lot of federal money available for high efficiency units, air sealing, attic insulation, and blower door testing. They used to pay \$4,200, then \$2,000, \$1,500, \$1,000, and now it's down to \$500. So a bigger amount from Duke would help. Of course, people are getting tax credits too.

- Vectren's rebate for 95% furnace is a lot more. If Duke kept the \$200 for the 14 SEER and the heat pump and added more rebate for higher efficiency that would make a big difference. AEP in Columbus gives \$350 for 14 SEER, so that makes them more attractive.*
- It should be larger since they have to wait for a long time to get that rebate and then it takes a long time to get back the extra cost of the equipment. Some customers it could take 30 years to recoup that cost.*
- It's a pretty good number. Even \$250 for the homeowner and the 95% furnace would be good.*
- The incentive amounts seem about right. Duke is the only utility that pays contractors part of the rebate. So that's very much appreciated.*
- They're fine. They always have been fine. I think they are very generous*
- It could be more of course, but it's fine.*
- It's not a great deal for the customer, but everything helps to encourage higher efficiency. It's fine. I think it helps a bit, but it's not going to be the deciding factor for most customers.*
- Great that it's both. It helps us financially too.*
- We do a lot of work in rural areas and people have less money, so it's nice.*
- It helps and is okay. Of course I would love it if it was more.*
- The \$100 contractor incentive is fine. I used to hate the paperwork, but I'm used to it now. The big thing was that they changed the rules without telling us what the new rules were. They should have made that clearer. I think is probably where the resentment comes from among trade allies.*
- The Duke rebate is just one more sales tool. As a standalone it doesn't do much, but when coupled with other rebates and tax credits it makes a difference. Without Duke's program, we'd sell the same equipment, but maybe we'd sell more low efficiency units and fewer high efficiency ones.*
- The rebates for new installs are fine.*
- Everyone wants more money but the rebate amounts seem fine.*
- The rebate levels are fine. (2)*

GoodCents Trade Ally Representatives

GoodCents field representatives received generally positive reviews for being pleasant, supportive, and responsive to the trade allies. Two people mentioned that they had not been

visited since GoodCents took over program administration. These and other comments are shown below.

- *Our new GoodCents reps have been awesome. The phone support people are also quite good.*
- *Very good. No problem. They're very good.*
- *I haven't had a whole lot of need, but when I have had a difficulty I find him very responsive. They are wonderful.*
- *It's great having one go-to person. I didn't have that before.*
- *He is very responsive to me and I really appreciate that.*
- *I never appreciated them before, but our new guy is great.*
- *They're fine. They leave card and are supportive and always ask if we need anything to give them a call.*
- *Our field rep is fine.*
- *I've talked to him a couple times mainly when they changed the paperwork. He's fine.*
- *[Name withheld] is helpful mostly.*
- *Their representatives seem OK. They come by once or twice per year and drop off brochures.*
- *In the last two years we've had two rep visits from guys trying to explain the new \$50 rebate program and what we need to do. I guess they cover the install program too, but there isn't much to say about it.*
- *I can't say about their trade reps since I'm always selling in the field when they'd be visiting our offices.*
- *I can't remember seeing anyone.*
- *Haven't seen anyone for two years.*

Time in the Program

We asked interviewees how long they had been participants in the program and what had changed during that time. Participation time frames ranged from three years to more than a decade. The primary changes noted included the shift in program administrators, increased rebate paperwork, and the elimination of the rebates for gas furnaces. Their thoughts are included the following.

- *Since it started. We're one of the top Westinghouse dealers. The forms change all the time and it's hard to get into the system. Plus the websites don't have the option for the form available.*
- *We've probably been involved since its inception. We are under different ownership for the last three years, but have been in business since 1964. The transition went fine. No noticeable change from our perspective.*

- *We've been in business 35 years and have been with since the beginning. They switched administrators and it's been getting better since then. But since they dropped the gas furnaces that's not as good.*
- *I've been in the program for more than a decade. The transition to the new administrator was a pain, particularly learning the new requirements and paperwork, but now that it's over it's OK.*
- *We have been a part of the Duke program since 2005. The transition to Good Cents went smoothly. It took a little while to understand the new requirements but it's smooth now.*
- *We joined in 2007. They don't pay on about half of what we sell that used to qualify, and they've made it more difficult to file the application. It's more time consuming now and they ask for more detail than before.*
- *We've been in the program for six years. And aside from the new paperwork the change to GoodCents has been an improvement.*
- *Ever since it started in 2007 or 2008. Before, you could get \$200 for furnace as long as it was 90% or better, and the \$200 for AC was if it was 14 SEER. Now they dropped the furnace. Other than that the new paperwork is biggest change.*
- *We've been in the program for five years. The GoodCents people are better than [the old administrator].*
- *About four or five five years. The paperwork has gotten longer and they quit the gas furnaces.*
- *Four years now. Not that much has changed except that the forms could be better and gas furnaces don't qualify anymore.*
- *We started the program in late 2011. The transition to Good Cents went fine. The paperwork has gotten much more complicated.*
- *We joined the program three years ago and we really like it. The transition was confusing. The requirements were different and the paperwork was too. But that's behind us now and we're comfortable with it. So no complaints about that anymore.*

Why Trade Allies Participate

As may be expected based upon the program's design, the main reasons that trade allies participate in the program are 1) the extra \$200 in financial help provided to the customer when buying a higher efficiency (and often higher profit margin) unit; and 2) for the direct \$100 incentives that they get for selling higher efficiency equipment. Other reasons included customer expectations and participating in a community that is focused on positive change. Trade allies' individual responses include:

- *AC drives our business and the sales situation is more difficult with AC. So the rebate gives customers incentive to buy, and we get a financial reward too. It shows that Duke is trying to help people save energy, which is a benefit.*
- *It definitely helps us sell some customers that might not otherwise go over the edge. We like the double rebates. Customers get something and we get something too.*

- *We receive a financial benefit. That's making people more aware of higher efficiency products.*
- *It makes people in the marketplace be more aware. And you feel like you're in a community that is trying to improve something.*
- *The additional revenue. We share the reward with customer.*
- *The customer gets \$200 and we get \$100.*
- *It helps to move people to get higher efficiency units. It adds up together with other incentives.*
- *There's money for us too.*
- *Customers like it. It's a selling feature. Cash back is always a plus.*
- *It's not lot, but it helps to be able to offer that rebate.*

Program's Influence on Trade Ally Businesses

Trade allies indicated that the program has had a modest influence on the type of equipment they sell. Influence was strongest among HVAC trade allies who sell to middle income customers, while somewhat less among those trade allies who sell to wealthier customers with greater buying power for more efficient units.

- *The program helps us sell more higher efficiency units with ECM fans. Without it, we'd sell fewer high efficiency units.*
- *We don't carry a lot of inventory, but the perception that green high efficiency units are beneficial is influential. We make sure we carry those that qualify.*
- *The program hasn't necessarily influenced the equipment we carry, but it has increased the numbers of higher efficiency units we sell. Without the program, we'd sell fewer high efficiency units.*
- *The program hasn't influenced the line of equipment that we carry, but it has increased our sales of higher efficiency units. Sometimes that \$200 really makes the difference. Duke should definitely continue to offer the program.*
- *We've handled same brand for over 50 years. And we get whatever the customer wants.*
- *We just order what we need.*
- *The program doesn't influence sales particularly, but I think Duke should continue to encourage higher efficiency.*

We then asked the trade allies if their business would change if the program were no longer offered. We posed the question: "If the program were to be discontinued, what would happen to the volume of sales of the high efficiency models?" Trade ally responses varied from anticipating fewer sales to indicating it would make little difference.

- *It would definitely impact our business. Duke would be impacted too. We promote Duke through this program so our services reach our mutual customers. People would tend to look elsewhere if they didn't offer rebates.*
- *If it disappeared it would be a big problem for us. It would be harder to sell and customers might start going to lower efficiency equipment to save money.*
- *The rebates make a big difference. Our goal is to keep the purchase price of the house down so without the rebates I doubt we'd offer customers the higher efficiency equipment. So it benefits our customers and it makes us look a little better by offering the higher efficiency equipment.*
- *Overall, I think Duke should continue to offer it, but I don't think they actually need to offer it. It doesn't make that much difference. If Duke didn't offer the program, we'd still sell high efficiency units to people who wanted them. But if people can't afford the low efficiency furnace then the \$200 isn't going to help much to get them to move up to high efficiency.*
- *Duke's rebates are doing a great job of increasing sales of high efficiency equipment and peak load reductions. Without that, it would hinder us. The government will eventually take the tax credits away too so then it would really affect us.*
- *Yes it would impact us. Half the customers who qualify today would maybe not have bought a high efficiency unit without the rebate. They would still buy, but not high efficiency.*
- *We would have to offer some other alternative or let customers go. People don't want to part with their money and we need to get them to do that one way or another. Or you're not going to stay in this business. So we would have to offer them something ourselves.*
- *The program really helps us to higher efficiency equipment.*
- *The rebates definitely help to nudge people toward higher efficiency units.*
- *We would lose a bit, but not that much.*
- *Not horribly much.*

At the risk of stating the obvious, trade allies see their primary goal as generating a profit by installing and repairing HVAC equipment. Providing their customers with higher efficiency units at lower prices is an important secondary aim, and one that provides a competitive business advantage. For this reason, virtually everyone we spoke with expressed a desire that the program continue. These findings lend support to the program goal to increase market share of higher efficiency equipment via rebates and incentives.

Other Suggestions

Trade allies also made a few other suggestions for the program that did not fit in the above mentioned categories, including more free brochures, on-bill financing, the ability to pay the trade ally the customer's \$200 when proof was provided that the same amount had been deducted from the customer invoice, and the desire for specific key account representatives. Specific remarks included.

- *Duke might send out info via their bill stuffers, but basically customers don't know about the program unless we tell them. So we could use more free brochures and marketing information. They give us money to buy them, but we do a lot of rebates and we need more. It'd be best if their sales people would just come by and ask if needed anything and then drop more off.*
- *When we do things with the Greater Cincinnati Energy Alliance we can literally deduct that from the amount the customer has to pay us and then we file the paperwork. Then the Energy Alliance pays us the full amount within one week. If Duke did something like that, it would be great.*
- *Perhaps they could offer financing on their bills to pay for the higher efficiency equipment.*
- *They should set up a key account representative system for their biggest trade allies. We do over 200 applications each year. So that would make it much easier for us to deal with just one person who understands our business.*

Evaluation Findings and Trade Ally Recommendations

Evaluation Findings

The trade allies we spoke with were overall very satisfied with the program and eager for it to continue. Nonetheless they offered up an extensive list of observations regarding areas for improvement.

The most significant areas needing improvement focused on the level of detail required on the rebate applications and the rigor with which minor clerical errors cause applications to be rejected. Of concern was the impracticality of obtaining serial numbers off the old units being replaced, particularly since time and weather caused the numbers to be unreadable on outdoor units. Obtaining customer account numbers is also problematic for trade allies. The paper forms themselves were also deemed difficult to fill in, and someone requested the ability to use digital forms, not realizing that they were already available online via the trade ally web portal. Another paperwork related issue involved the erroneous belief that the program requires trade allies to include copies of paid invoices.

The level of detail required on the rebate applications appears to be inconsistently enforced with some trade allies being rejected, which others passed inspection without including a customer account number. Trade allies also expressed concerns about the program practice of sending notifications about errors and rejections directly to customers without first notifying only the trade ally in order to provide them an opportunity to rectify the situation. Despite this, the level of phone support that GoodCents provides to rectify mistakes was almost universally praised. GoodCents field representatives were also considered to be responsive, and informative.

Rebate levels are generally considered appropriate as they are. Although several trade allies did request higher incentives. Many trade allies doing business in Ohio requested that furnace rebates be reinstated, even if at higher efficiency levels. Others requested new rebate offerings for equipment not currently covered by the program, including additional types of heat pumps, mini-splits, high efficiency boilers, and programmable thermostats.

Wait times for most rebate checks fit within the program's advertised four to six week timeframe with some wait times extending to eight weeks. The majority of trade allies find the wait times acceptable. A few examples of longer wait times were noted, but these seem to have occurred during the 2012 transition phase when rebate applications were being sent to the former third party vendor and then forwarded to GoodCents. One trade ally requested that checks to her company be bundled and sent in batches, rather than sending 30 individual checks at a time.

Overall trade allies are happy with the program and they report that they would sell fewer high efficiency units if the program were terminate. They generally consider the program's rules to be reasonable business requirements that must be observed in order to obtain the incentives. Further findings are discussed in the trade ally survey section below.

Trade Ally Recommendations

The list below presents the actual recommendations for specific program changes and enhancements suggested by the trade allies that we interviewed.

- Simplify the rebate application forms. Or if not, then at least provide an annotated sample form with detailed explanations and have GoodCents field representatives educate trade allies regarding which details on rebate applications are required, which are optional, and why requested information is necessary.
- In light of the fact that the serial numbers from the old units that are being replaced are difficult to obtain consider eliminating that requirement, or at least marking that data field as optional.
- Consider using the customer's service address as the primary means of identification instead of the account number.
- If AHRI numbers are required then provide an easier-to-use alternative to the AHRI website such as a chart or database that makes finding the requisite information easier to obtain.
- Temper the strict requirements that rebate application be "an exact" match, so that stray marks, customer middle initials, and obvious typos do not cause rejection notices when these types of minor inconsistencies exist
- Modify the layout of the printed forms to provide larger writing spaces for data entry.
- Allow extensions to the rebate application deadline upon request.
- Extend the timeframe for trade allies to redress errors and rejections prior to sending notifications directly to customers.
- Increase the information provided on the web portal regarding the information needed to approve rebate applications.
- Provide additional information on the web portal regarding the estimated arrival date of rebate checks.
- Batch trade ally checks together and mail them in a single envelope.
- Educate trade allies about where they can download a digital PDF rebate application forms.

- Increase the rebate levels for heat pumps, particularly geothermal units.
- Expand rebate coverage to other technologies, including boilers, mini-splits, and other high efficiency systems.
- Provide \$20 rebates for programmable thermostats.
- Establish the ability to pay the trade ally the customer's \$200 when proof is provided that the same amount had been deducted from the customer invoice
- Provide customer financing of HVAC purchases rebated through the program.
- Consider reinstating gas furnace rebates, even if at higher efficiency levels.
- Set up a key account representative system for their biggest trade allies.

Trade Ally Survey

To supplement the qualitative interviews discussed above, TecMarket Works completed a quantitative survey of 79 Residential Smart Saver trade allies, including the 20 trade allies interviewed for the section above, plus an additional 59 selected at random from a list of 364 participating trade allies whose businesses are based in Ohio or Kentucky. Those interviewed self-identified as the person within their company most familiar with and qualified to speak about the Smart Saver HVAC program. A sample of the telephone survey instrument can be found in *Appendix C: HVAC Trade Ally Survey Instrument*.

Trade Ally Activity Level

The survey was designed to assess the opinions of trade allies with a broad range of participation levels. Trade ally activity levels during the previous twelve months ranged from those submitting between zero and 1,302 rebate applications. Among those we spoke with, nearly half (46.9%) of trade allies file 20 or less rebate applications per year, while at the other end of the spectrum 20.2% of trade allies file 100 or more rebate applications per year. The mean number of applications was 76.9, while the median was 20 and the mode was 10. In other words, a high number of trade allies file a relatively small number of rebate applications each year, while relatively few trade allies are responsible for a large number of applications. This finding corroborates observations regarding the program's mix of participation levels made by Duke Energy and GoodCents during the management interviews.

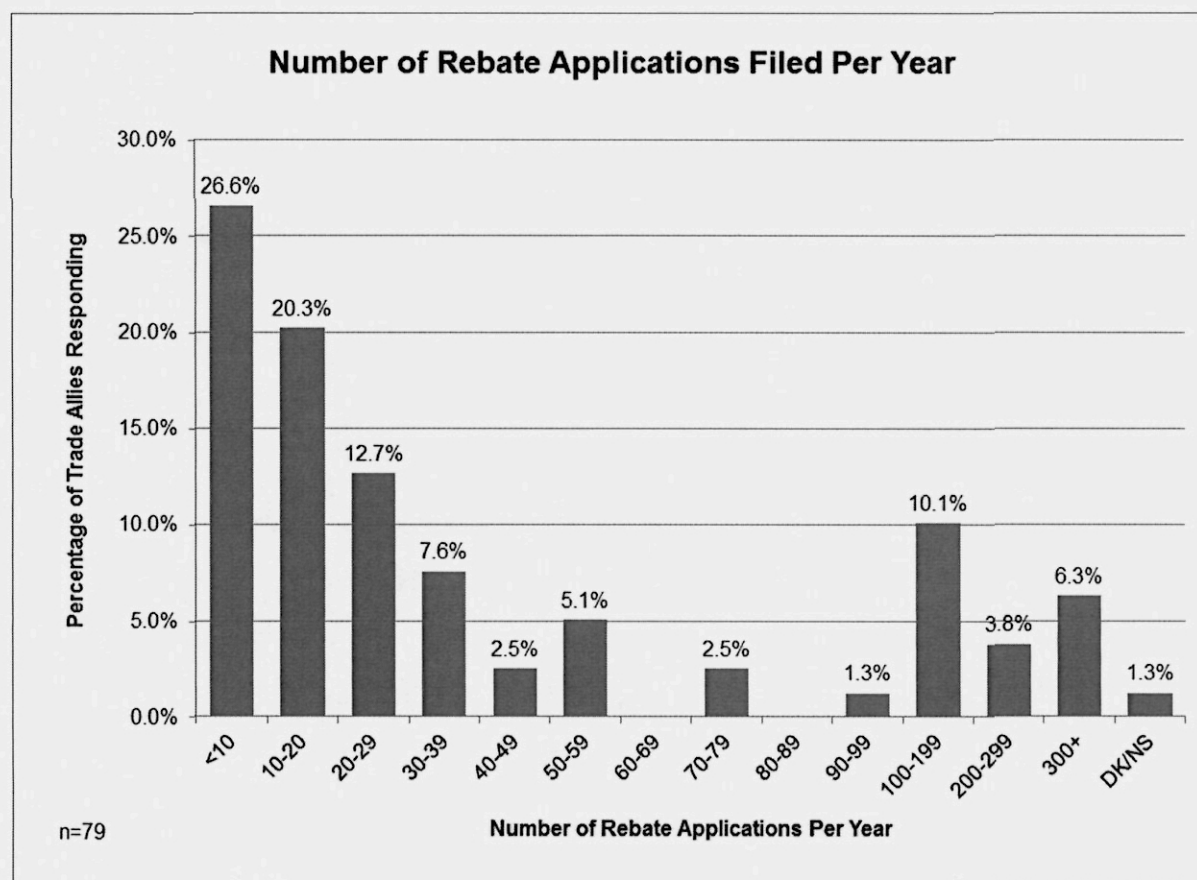


Figure 1. Trade Ally Activity Levels

While we only asked for a numeric response to this and the following survey question, some trade allies shared voluntary comments to provide additional information to help characterize their replies. Their verbatim remarks are listed below.

- *I don't like the new rebate form. It is too demanding and intrusive. From 2008 to 2011, we used to do 100 Smart Saver rebates per year and now we don't offer them unless the customer specifically requests it.*
- *I stopped promoting the program ever since it began requiring customers to purchase both an AC unit and a furnace to qualify.*
- *It seems like a lot of my customer base doesn't go for the higher SEER equipment.*
- *Since they took out the gas furnaces, it has gone way down. This year we've only done 10 to 15.*
- *We're down since Duke stopped the gas furnaces and now it's only AC.*
- *It's dropped quite a bit this year because they quit paying on gas furnaces.*
- *We're down considerably this year due to the gas furnaces being taken out.*
- *I used to do more before they discontinued offering the furnace rebate.*

- *Most of our customers are within the Vectren and DP & L service area (as opposed to Duke).*
- *It depends on the year, and most of our customers aren't served by Duke.*
- *We service a large area with 3 separate branches so it's hard for me to estimate this.*
- *Give or take, it depends on how many units we put in and we've only been doing it for the last couple of years.*
- *It really depends on the year. We've had maybe 10 in the last 12 months.*
- *We also have an office in Cincinnati and Dayton too. And we're expanding into northern Kentucky.*
- *At minimum.*
- *About 20 last year, I think.*
- *We primarily do commercial work.*

Replacement of Failed Units versus Still Functioning Units

Next we asked survey respondents to estimate the percentage of their customers who were replacing failed units compared to those who upgrading units that were still functioning.⁶ Estimates for failed units and still functioning units were asked in separate questions and are shown as different color bars in the figure below. Overall 44.3% of trade allies indicated that at least three quarters of the equipment that they replace has failed, while an additional 15.2% reported that between half and three quarters of the equipment they replaced had failed. This compared to a mere 7.6% of trade allies who indicated that half to three quarters of the units that they replaced were still functioning, and 8.9% who said that more than three quarters of the equipment they sold replaced still functioning units. The differences arose primarily based upon the communities served by the trade allies. As may be expected, those trade allies that worked in relatively wealthy areas dealt with customers who were more eager to upgrade for greater efficiency, improved comfort, quieter operations, and other reasons, while those trade allies who worked in moderate to lower income areas saw a high percentage of customers who preferred to wait until the units failed before paying to replace them.

⁶ Note that combined survey responses do not necessarily total 100% since a small number of contractors indicated they also worked in new construction, which was not captured as a separate percentage in the survey.

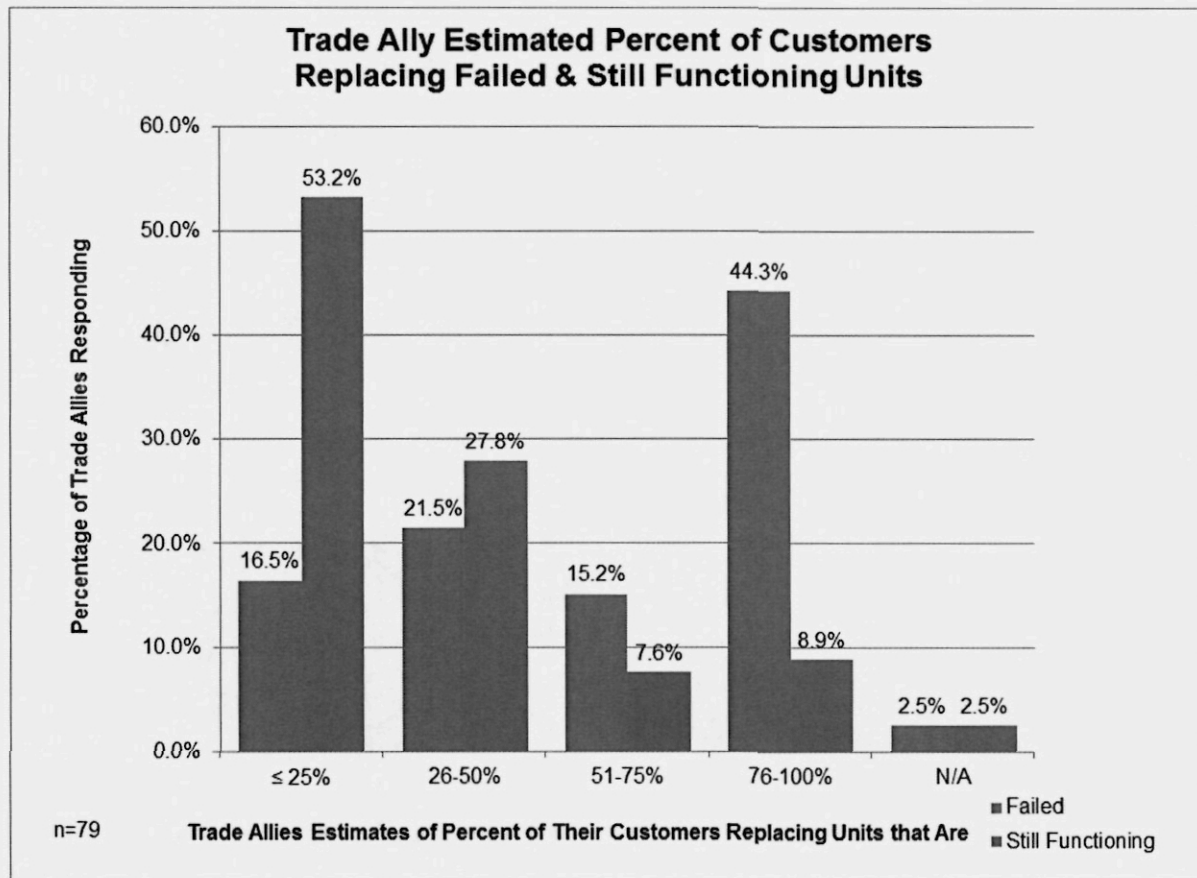


Figure 2. Condition of Units Most Typically Replaced

Additional feedback is noted below.

Failed Units

- *All of them are failed.*
- *Most of them don't upgrade before they need to.*
- *The percentage fluctuates throughout the year.*
- *We do get some that are just upgrading.*
- *We work only in new construction. (3)*
- *We work only on new construction projects.*

Still Functioning Units

- *Almost all of the equipment that we replace is over 10-years-old, but I'd say all of them are still working.*
- *The repairs are just too expensive. At this point, it's better to replace the units to something that is more efficient.*

- *These customers usually have units that are still functioning in some capacity, but are at the age where they should be replaced.*
- *They're starting to go bad and need repairs, but instead of paying for costly repairs they go for new units in most cases.*
- *We also do about 5% new construction.*
- *We work only in new construction. (3)*

Percentage of High Efficiency Equipment Rebated Through Program

In order to determine how fundamental the program's rebates were to trade ally business, we asked survey respondents to characterize the total volume of their businesses' high efficiency sales that were rebated through the program (Figure 3). Responses ranged from 1% to 100% of the high efficiency equipment that they sold being rebated through the program, with a mean of 53%.

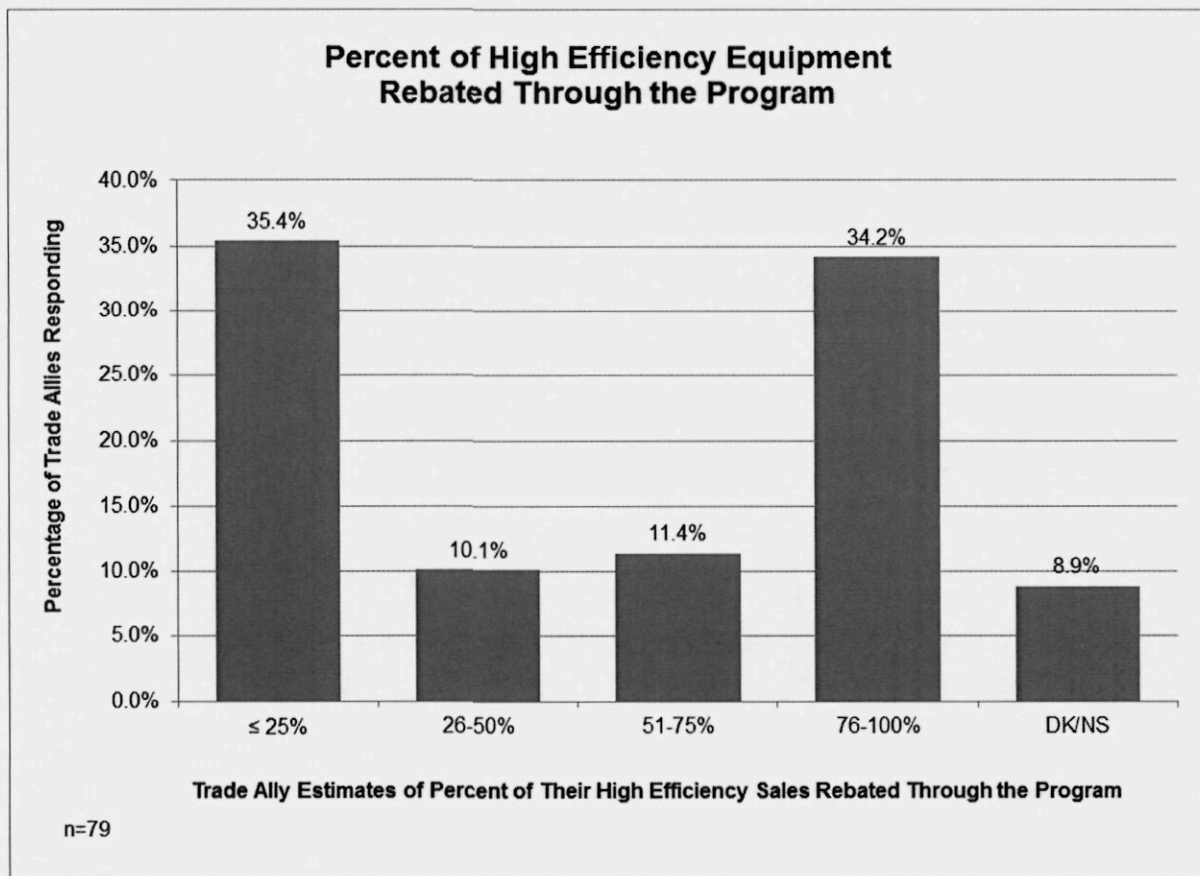


Figure 3. Percentage of Equipment Rebated Through the Program

Data distribution reveals that responses tend to cluster toward both ends of the spectrum. On the high end of the spectrum some 34.2% of trade allies filed rebates for at least three quarters of their higher efficiency sales. While on the less frequent end of the spectrum, a near similar

number of trade allies (35.5%) filed rebates for less than one quarter of their high efficiency sales. Stated reasons for why the filed so few rebate applications for high efficiency equipment were limited, since a specific follow up question was not a part of the survey. However, voluntary responses focused on three notable reasons: the trade allies work predominantly in other utility service areas and hence are not selling to Duke Energy customers; the elimination of the Duke Energy furnace rebate hurt their applications numbers; and a dislike for the new rebate paperwork.

Actual comments gleaned during responses to this question are shown below.

- *The percentage could have been higher but many of our customers receive alternate rebates through Dayton Power & Light instead.*
- *The majority of our customers are DP&L.*
- *Since Duke is no longer rebating giving the furnace rebates, I have less customers for this.*
- *The percentage was higher in previous years before Duke discontinued offering the rebate for furnaces.*
- *I used to do a lot more Smart Saver rebates but now have all but ceased (unless a customer specifically requests it). The new rebate form requiring model and serial numbers is too time-consuming and not worth the labor.*
- *100% of our residential work was rebated through the program.*
- *We do a lot of new homes that don't do the rebate.*
- *That's an estimate.*

Estimated Customer Awareness of Rebate Prior to Contacting Trade Ally

One quarter (25.3%) of trade allies estimated that fewer than 1 in 10 of their customers were familiar with the Smart \$aver program before it was discussed at the point of sale. This compared to only 1.3% of trade allies who felt that 9 out of 10 of their customers had already heard of the program. Overall trade allies reported that an average of slightly more than 1 in 4 customers (mean 28%) were aware of the program. The actual range of trade ally estimates spanned from zero to 100% of customers being aware of the program. A full breakdown is shown in Figure 4 below.

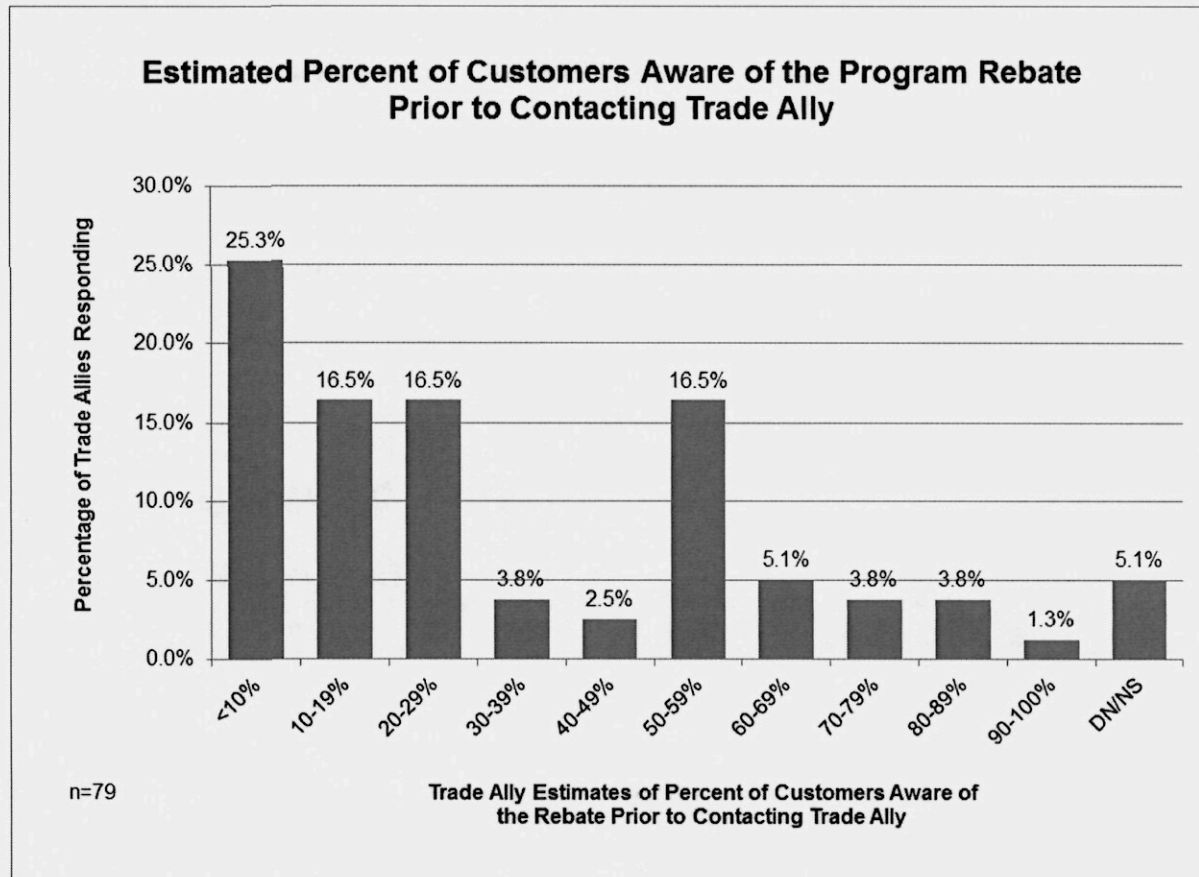


Figure 4. Estimated Customer Awareness of the Program

According to the survey respondents that we spoke with, they consistently reported that they explain the program and the rebate amounts to customers during their sales processes. And the most commonly cited reason for customers being previously aware of the program was that the some other trade ally had previously spoken with the customer. A few trade allies felt that customers were aware of the program due to their own research efforts or due to Duke's Energy's marketing efforts. Their supplemental remarks are listed below.

- *I don't get too many people who ask for it specifically.*
- *I think it's 50/50 on how many people know about the program.*
- *I was able to tell the rest of them that didn't already know about it. We were pleased to be able to offer this as part of the estimate for them.*
- *Most of them we told about it. We give that information along with our package each time.*
- *Most of the time the only way they are aware is if they get multiple bids.*
- *Other trade allies are telling customers who get multiple bids.*
- *People talk with other contractors too.*

- *People have heard about the program and questions about it are pretty common.*
- *Some customers are surprised. Many of the people that are calling in are aware of it.*
- *Some customers could be aware of it, but it doesn't come up since we basically install the units in all our new homes and the customers don't get the rebates. We do.*
- *We do use the rebate as a selling feature. We include it on all bids.*
- *We're seeing more educated buyers looking for higher-end equipment and they've done research usually.*
- *All my customers thoroughly research their options when choosing geothermal units.*
- *When he gives the customers the price estimates, he shows them a list of all the rebates available, so I can't be sure which rebates the customer was already aware of.*
- *Very little.*
- *Maybe.*
- *DK/NS*

Estimated Percentage of Customers Who Would Have Purchased Higher Efficiency Equipment without the Rebate

The Smart \$aver program is designed so that trade allies introduce the rebates to customers during the sales process. By presenting the information at the point during which customers are considering making the purchase, the rebates are intended to have maximum influence. To determine how effective the rebates actually are, the survey asked trade allies estimate how many customers they thought would have purchased a high efficiency unit without the rebate. Among those trade allies we spoke with, more than half (51.9%) estimated at 9 out of 10 of their customers would have made a similar purchase without the Duke Energy rebate. Trade ally responses actually ranged from 1%-100%. The mean response was 78%, while the median was 90% and the mode was 100%. A full breakdown is shown in Figure 5.

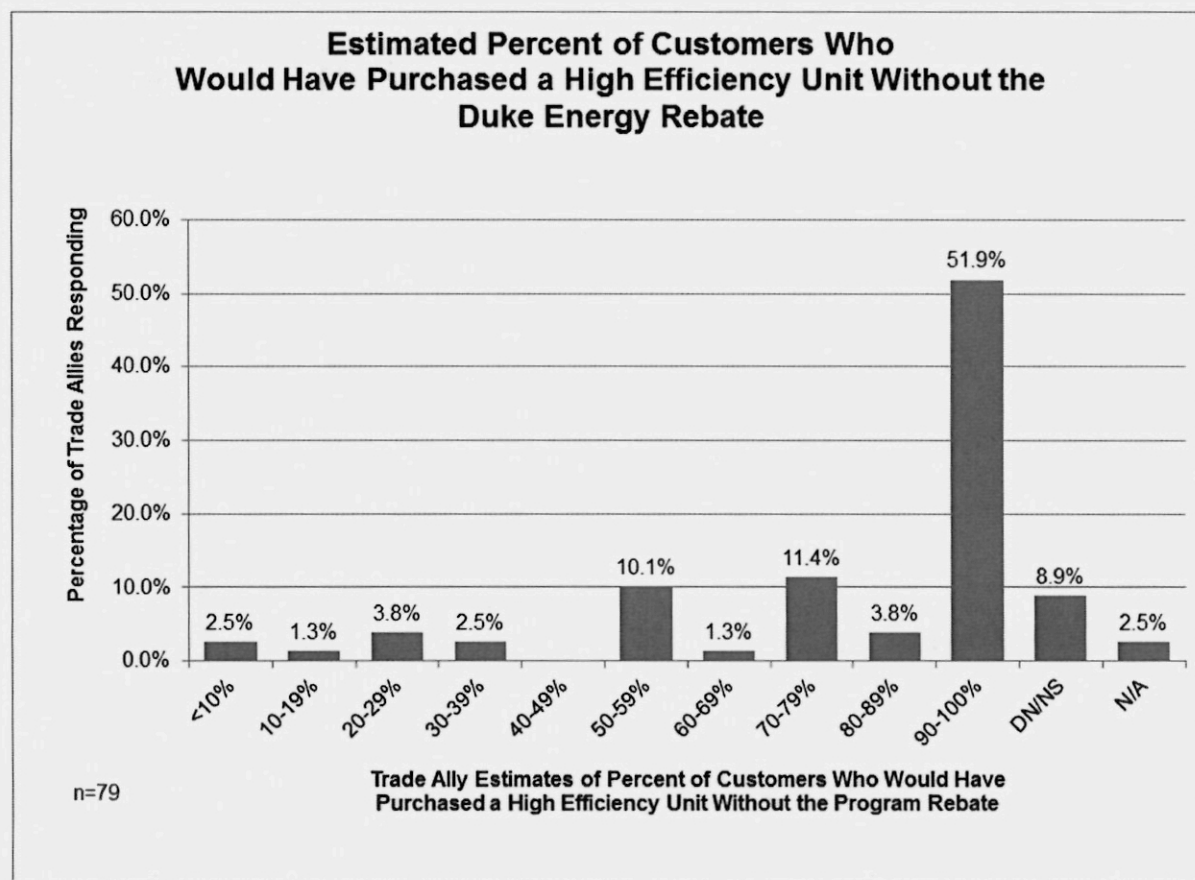


Figure 5. Percent of Customers Who Would Have Purchased without Rebate

This finding makes the program appear to have high freeridership, but there are complicating factors involved, including the availability of other monies from tax credits, manufacturer rebates and other incentives, many of which offer more money than the \$200 offered by Duke Energy. Another factor is that relatively few customers are aware of the rebate (a mean of 28% according to the previous question above) before the trade ally presents it. Moreover, other concurrent factors may be more influential than the rebate including the overall price stated by the trade ally, their company's reputation, the unit's efficiency rating, monthly operating costs, and anticipated monthly savings on their energy bills (see *Factors More Influential than Rebate*). Actual quoted replies are noted below.

- \$200 isn't that much. (2)
- I mean, to me, it's a nice deal, but the \$200 doesn't really make a difference.
- Most of our customers are looking for high efficiency equipment because of our business.
- Not the major selling factor for a lot of these customers.
- Our company only sells high efficient equipment.
- We only have a couple of units that are under 14 SEER.

- *For most of these customers, the high-efficiency equipment is an investment. The rebate is good on top of that.*
- *The rebate helps offset the cost difference between the lower and higher efficiency models. We've noticed that more customers are going with less efficient furnaces since Duke abolished the rebate offer for those.*
- *It depends on what you consider high-efficiency. They would not go to that SEER rating if the rebate wasn't there.*
- *There are other rebates and tax credits, like the Greater Cincinnati Alliance. (2)*
- *My boss is the one who discusses the rebates with customers, so don't see what choices they made.*
- *This is a difficult question to answer. We have 80% furnaces eligible for the program because of our hard winters. We're right on the line, or the border, for offering 80% versus 90%. You go right across the river into Kentucky and it's different. The only time we offer other than 80% is when there's a stainless steel flue in place.*
- *We work only in new construction. We install the same 96% efficient model in all our homes.*
- *All our new homes come with high efficiency units.*
- *All of them.*

Rebate Influence on Customers' Purchase Decisions

Since other factors are also involved in the customer's purchasing decision, we asked trade allies to consider the full context of that decision and then estimate the rebate's influence relative to any other factors involved. Trade allies rated the influence of the rebate on a scale of 1 to 10, with 10 being most influential. More than twenty percent of trade allies (21.6%) rated that influence an 8, and a combined 33.8% rated the influence as an 8, 9, or 10. The mean rating was 6.0 with the range of answers spanning from 1 to 10.

While this finding points to a strong perceived influence from the rebate, it is somewhat at odds with the previous finding to which 52% of trade allies estimated that 9 out of 10 of their customers would have made similar purchases without the rebate. However, TecMarket Works finds that the discrepancy between these two findings may be explained by the relative affluence of the customer base served by the trade allies, with the rebate having less influence more affluent customers compared on those customers of more modest means, as is hinted at in the comments below.

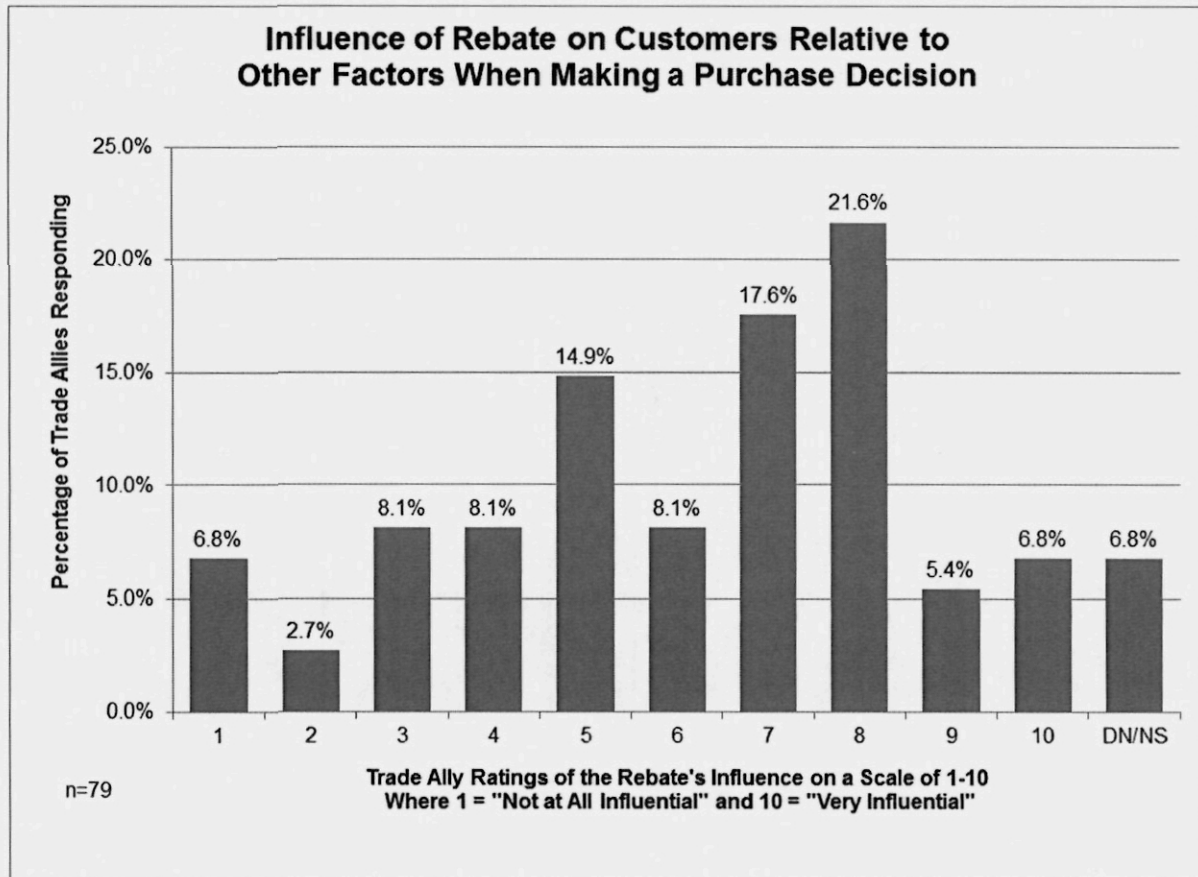


Figure 6. Influence of Rebate on Purchasing Decision

When a response of 7 or lower was provided, survey respondents were asked to explain why they gave that rating. Their replies are listed below.

- *Rebates are pivotal for reinforcing the belief in the importance of high efficiency.*
- *More last year than this year. Last year that would have been an 8 or 9.*
- *Most customers are going with high efficiency models regardless of the rebate, though it is a nice perk.*
- *Everyone likes to get money back.*
- *A lot of people look at that and contemplate, but if their money isn't straight, or they can't get financing, they drop down to the lower unit. But, it usually sparks their interest and drives them to do more research.*
- *The rebate could be more influential if the dollar amount was higher and especially if furnaces were again covered by the program.*
- *The rebate can be influential, because it usually pertains to more expensive equipment.*
- *The rebate can be influential, especially if the step up to the next higher SEER rating costs \$500 and the Duke rebate reduces that cost by almost half.*

- *It's money back in their pockets and it's an instant rebate.*
- *We see a lot of people wanting to see the energy efficient products in their home. They specifically ask for energy efficient products.*
- *It's a good financial incentive, but not the deciding factor.*
- *There are other factors.*
- *Sometimes the customers tend to lean more towards short term savings rather than thinking long term.*
- *The amount of the rebate is rather small so it isn't a huge factor in customers' decision making process.*
- *The rebate can be a nice selling point but it is only \$200, which is merely a drop in the bucket in the overall purchase price.*
- *I figure that at that point in the game, the rebate probably just pushes them over the edge. They're going to spend that money anyway.*
- *Other factors in the mix.*
- *So many other rebates.*
- *It's something anyway.*
- *Duke used to offer a higher rebates for furnaces and heat pumps. The current amount of the rebate isn't high enough to influence a customer's decision-making process.*
- *Customers know that by purchasing a new heating unit that they can still save on their monthly utility costs, even if they don't purchase a high efficiency model.*
- *Most customers need a new system anyways, so the rebate is just a little additional bonus.*
- *People like to get money back, plus the efficiency of the new unit is a selling point.*
- *A lot of people don't know about it unless I tell them about it. Some of them say, 'I get a rebate, that's great', but they're not one way or another about it, they want it.*
- *The people considering a high-efficiency unit would purchase them regardless. The rebate is only an added incentive.*
- *The rebate does seem to be influential. My customers appreciate it.*
- *It only adds a few hundred dollars.*
- *Price is most important and other incentives are more money.*
- *We sell only York brand.*
- *In the grand scheme of things, after considering the replacement cost of these units, a \$200-400 rebate isn't very influential.*
- *My customers have already decided on what system to get and the small amount of the Duke rebate is just icing on the cake.*

- *It made a difference on a package deal when they covered the gas. It was more of an incentive then. There's so many restrictions on it now, it doesn't apply to as many of my customers.*
- *Rebates are not really on people's minds.*
- *Our customers tend to purchase from us based more on our reputation, knowledge, and quality of service.*
- *Obviously, \$200 or \$300 is not the deciding factor when considering a \$5,000 purchase, but the rebate helps.*
- *Customers are more influenced by the long term operating costs of the equipment. The majority have already decided they were going with high efficiency models and the rebate was merely a bonus.*
- *It's only \$200. When my customers are spending \$5,000, \$8,000, \$10,000, this rebate is a drop in the bucket.*
- *When they weight the overall cost against the time to recover those cost, the efficient units are not worth the money for most of my customers. I just don't push customers toward more efficient units. In the long-term, it's better for Duke because they're running out of energy, but I look out for my customers.*
- *When they figure out they can get the rebate, it's something they've come to expect. As soon as hear about it, they realize it's something everyone can get and it becomes an expectation rather than a motivation. Nobody wants to buy a furnace. The only people who are buying furnaces are people who have to buy furnaces. Eight out of ten furnaces already have flue pipes from 90% furnaces.*
- *The rebate isn't large enough to be influential at all.*
- *A lot of it has to do with the dollar amount of the rebate. When you're talking about a purchase based on dollar amount, such as a \$5,000 or \$6,000 set up, or a \$16,000 solar system, \$200 or \$300 is a drop in the bucket. This rebate probably has minimal influence.*
- *There is no rebate benefit to the customer as far as new construction goes.*
- *Due to the higher demands of the latest rebate form, we do not process Smart Saver rebates unless the customer specifically requests it.*
- *Because \$200 is nothing when you're talking \$10,000 to \$15,000 jobs. It's a very poor dollar amount to talk about.*
- *They're purchasing the whole new home and the furnace and rebate are too small to be relevant.*
- *Overall purchase price is the most influential factor.*
- *I have ceased promoting the program.*
- *It's hard to say because high rebate incentive Alliant and Greater Cincinnati were offering up to \$4000 at one point, which had a lot more influence than the \$200. We offer the customer all of the rebates as part of a package.*

Some survey respondents who gave responses of 8 or higher also volunteered additional information with their answers. Their feedback was as follows.

- *Our customers are looking to save money wherever they can, so the rebate is influential.*
- *When customers are informed of the rebate they tend to go with it.*
- *Customers like rebates.*
- *People appreciate the \$200 savings.*
- *We mention on quotes, but other rebates are also a factor.*
- *The rebate helps cover the cost difference between lower and higher efficiency models.*
- *Customers love getting money back, be it from Duke, or the government, or the equipment manufacturer.*
- *I think anything that saves a customer money can be influential.*
- *Most people, when you tell them they'll get a rebate, they say to go for it. That way, they get a little something back.*
- *Any mention of a rebate, no matter how small, seems to trigger a positive response in customers.*
- *People like getting money back in the form of rebates.*
- *Once a customer hears about the rebate they typically go for it unless they don't have enough funds to afford a high efficiency unit.*
- *It helps, it definitely helps.*
- *The rebate i.e. getting money back is helpful.*
- *Customers are typically buying new units out of necessity and they appreciate the rebate.*
- *We work only on new construction projects.*
- *The rebate is a nice perk for a lot of customers.*

Factors More Influential than Rebate

The survey followed up with a question asking trade allies to list any factors that they felt were more influential than the rebate. The most popularly cited factor was the overall purchase price (36.7%). This was followed closely by trade ally reputations (31.6%) for quality service, often backed by positive word of mouth referrals. These top two responses were succeeded by four additional financial motivations that combine to total 64.6%, including: efficiency rating (19%), tax credits (17.7%), monthly bill reduction (15.2%) and equipment operating cost (12.7%). Figure 7 shows all factors considered by trade allies to be more important than the rebate.

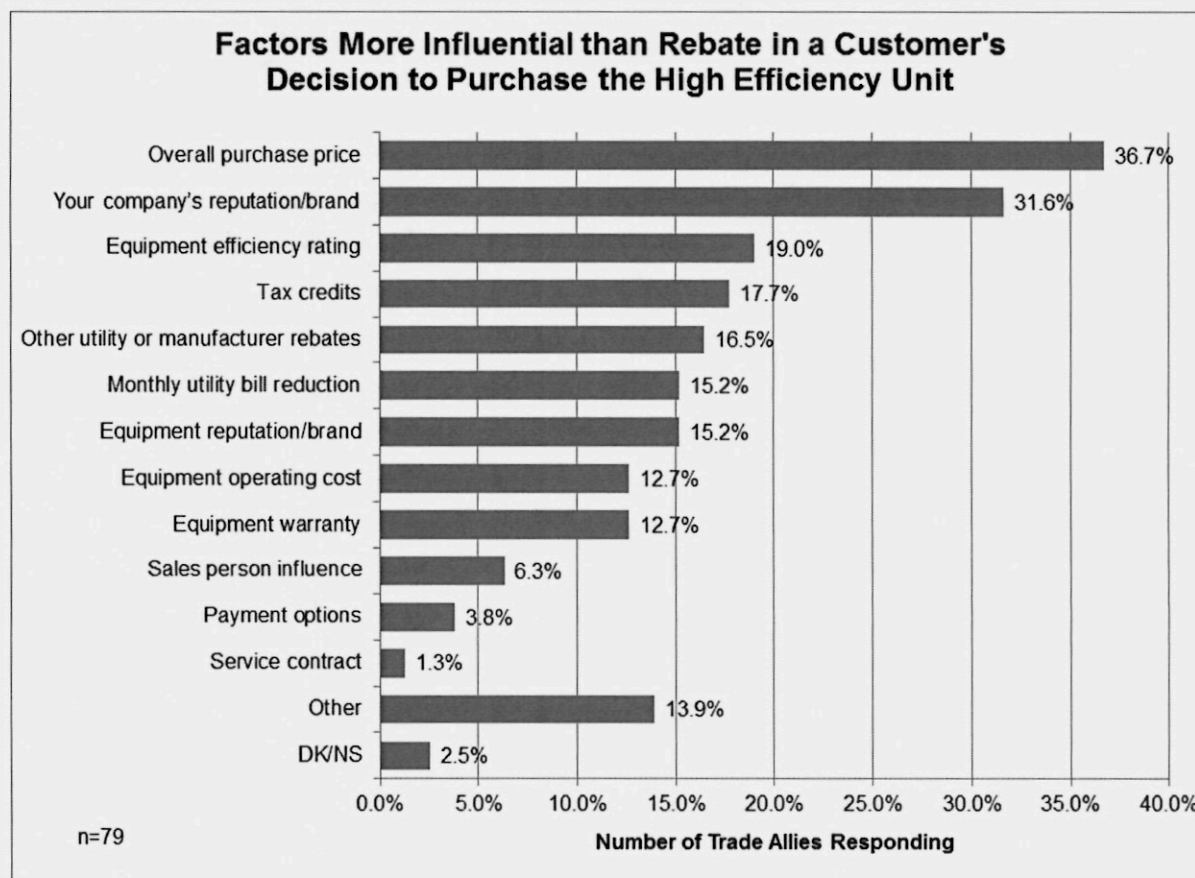


Figure 7. Factors More Influential than Rebate

Fourteen percent (13.9%) of survey respondents provided an "Other" response. The most common responses mentioned the quieter operations of the new units and the overall comfort levels the new units provide. Specific responses consisted of the following:

- *Comfort.(2)*
- *Quieter unit. (2)*
- *Air quality and evenness of the temperatures, the humid level.*
- *The comfort and quiet operation that a new HVAC unit provides.*
- *Unit reliability.*
- *Perceived value.*
- *There's been a lot of advances made in the equipment in the last 10 years, so more modern features.*
- *Purchasing a highly efficient model tends to empower the customer and makes them feel good.*
- *We create new construction and our customers are more concerned with other things such as kitchens, bathrooms, etc.*

Estimated Percent Customers Who Opt for Lower Efficiency Unit after Learning of Rebate

One way to calculate the effectiveness of the \$200 rebate is to consider how many customers do not take advantage of it once they are made aware of the opportunity. When we asked the trade allies this question 27.8% of them estimated that fewer than 10 percent of their customers opted for the lower efficiency unit after learning about the rebate. Overall, they estimated an average of 23% of their customers opted for a lower efficiency unit. Stated conversely, this shows that trade allies estimate that an average of 77% of customers select the higher efficiency equipment after learning about Duke Energy's \$200 rebate offer. A full display of the findings is shown in Figure 8 below.

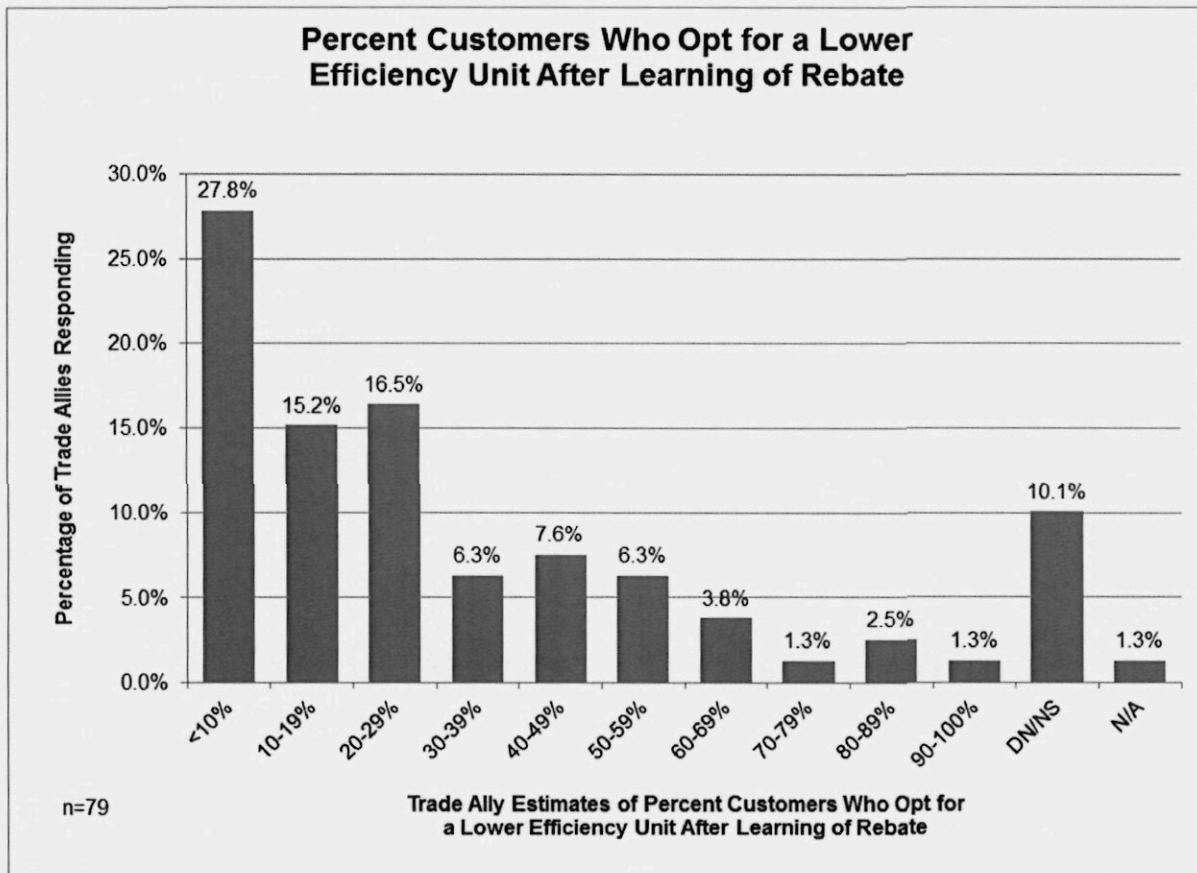


Figure 8. Percent of Customer Opting for Lower Efficiency Unit

As noted in the previous survey question, the final purchase cost of the new units was a primary motivating factor among price-conscious customers, particularly among those customers who feel they are stretching themselves financially and among landlords buying new or replacement units for their rental properties. This and other feedback is noted below.

- *A lot of it just deals with the cost. I mean, I'm an employee and I went for a 15 SEER instead of a 16 SEER because of the price difference.*

- *And, going for the less expensive option is not just happening with rental properties. I've seen an increase in this.*
- *If someone is only replacing the AC they won't be concerned with high efficiency if they don't have an ECM motor. Other than that it's mostly rental units.*
- *If they can afford the higher efficiency units they buy them.*
- *It would depend on the cost. Once the high-efficiency equipment is already in there, it would be hard for the customer to pay more to replace it with a different, lower-efficiency model.*
- *It's harder to qualify for just an AC unit with an existing furnace.*
- *It's very low.*
- *Most of the people were older people wanted the cheapest priced equipment they could get. They're retired and don't want to have to replace the units. They wanted something that would last.*
- *Mostly driven by cost.*
- *My boss is the one who discusses the rebates with customers, so I don't see what choices they made.*
- *Probably.*
- *Rental properties won't put in the highest quality equipment.*
- *Some customers just have to put in what they can afford.*
- *The rare exception to installing high efficiency units would be if a customer didn't want one and specified it. It's very rare but not quite zero.*
- *There's a big segment that will go with the cheapest thing they can get.*
- *We don't offer our customers a choice in the type of unit we install.*
- *We install high efficiency models and don't typically offer our customers a choice.*
- *We still have a lot of 13 SEER replacements on AC units.*
- *When they weight the overall cost against the time to recover those cost, the efficient units are not worth the money for most of my customers. I just don't push customers toward more efficient units. In the long-term, it's better for Duke because they're running out of energy, but I look out for my customers.*

Helpfulness of Rebate for Selling High Efficiency Equipment

Next we asked trade allies to use a similar 1 to 10 scale to rate how helpful the rebate is to their company's ability to sell higher efficiency equipment. A sizable 21.5% of trade allies rated the rebate with a top two box score of 9 or 10, and a combined 58.3% rated the rebate's helpfulness as a 7 or higher. The mean response was 6.6. Thus, even though some trade allies felt that the \$200 customer incentive was fairly small compared to the overall purchase price, they nonetheless found the rebate to be helpful in completing the sale of high efficiency units.

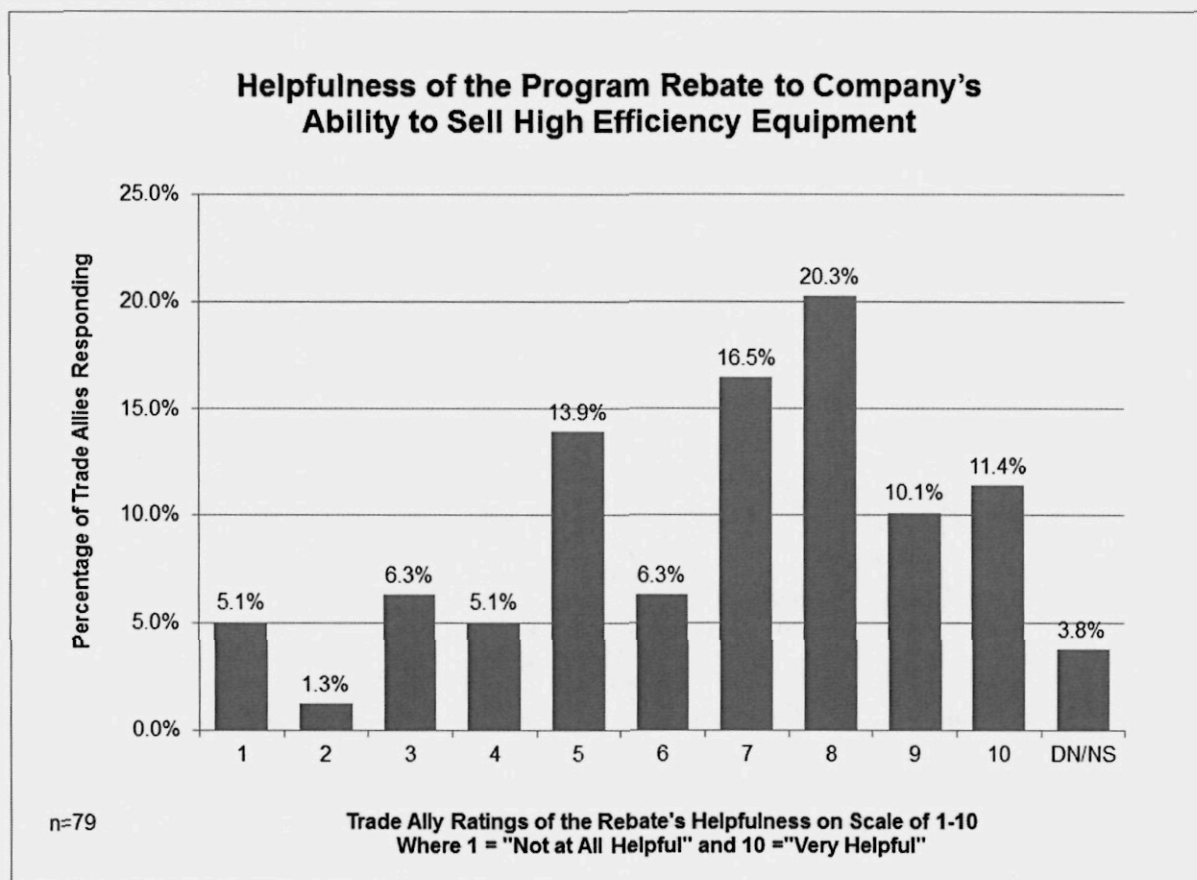


Figure 9. Helpfulness of Rebate for Selling High Efficiency Equipment

Those who provided responses of 7 or less provided the following reasons for their scores.

- *It just adds to help offset the costs.*
- *The ability to offer rebates is helpful in sales.*
- *It is helpful because customers like saving money.*
- *The rebate is helpful because it can supply that extra little incentive for a customer to purchase a more energy efficient unit.*
- *Anytime a customer can save some money is a plus. Many of our customers are not supplied by Duke Energy.*
- *Anytime you can tell someone they'll get money back is helpful.*
- *You're able to peak their interest with it or usually sell them on the furnace when you can show them there's a rebate available.*
- *Customers always want something back. Anything you can give them extra, it really does help. The rebate no longer covers gas furnaces, so that makes a difference.*
- *The rebate is helpful, especially when a customer is already thinking about purchasing high efficient equipment.*

- *It's helpful. It's nice to just be able to knock it off the top, so they can see a savings right away.*
- *The rebate helps show people the immediate and long term cost savings associated with purchasing a higher efficiency model.*
- *Part of our business profile is to encourage high efficiency equipment. Incentives are also nice for us and the customers.*
- *It adds to the other rebates.*
- *\$200 doesn't make up a \$1000 price spread to the more efficient equipment.*
- *Last year it would be a 7 because we can't get some of the equipment covered that we'd like.*
- *I think that if they can see some return on their investment, that's really the most influential factor. But, anything to help offset the cost really helps and it can really make a difference on an \$800 system.*
- *I listen to feedback from my customers and they do seem to appreciate the rebate.*
- *It helps but other things help more. Although it used useful for showing the importance of high efficiency*
- *The low amount of the rebate isn't much of a selling point.*
- *I'd say that the biggest selling points are laws requiring high efficiency models, unit longevity, and then the rebate.*
- *The \$200 rebate is a nice bonus that can help sway customers towards higher efficiency units.*
- *If it was just on more expensive equipment, such as a \$2000 system, that \$200 doesn't make much of a difference. But, as part of a package of incentives we can offer, it works. The customer's always going to be glad to get a little something back.*
- *People don't know about the program. We didn't even know the program was out there until we were told by a customer a couple of years ago. We weren't informed by Duke. And, do I have time to search the web and find this information? No.*
- *The efficiency rating of the unit seems to be more influential than the rebate.*
- *That's just the way my company is; we sell high-efficiency equipment.*
- *The biggest reason was the tax incentive, The Duke rebate was the cherry on top, so it was nice to be able to offer it, but the real influence was getting something back on their taxes.*
- *We don't understand it that well, all the information they ask for, and it's very time-consuming.*
- *Duke's isn't that big of a rebate.*
- *The amount of the rebate is quite small compared with the overall purchase price. It doesn't affect sales very much.*

- *It made a difference on a package deal when they covered the gas. It was more of an incentive. There's so many restrictions on it now, it doesn't apply to as many of my customers*
- *It's not that much money.*
- *Most people really aren't that concerned about it. They're more concerned with the end price, the out-of-pocket. Most people would have a really hard time realizing the cost over time for a higher efficiency unit. I tend to be much more honest with my customers and I don't push them to purchase the higher-efficiency units when they can't afford them.*
- *People would rather the rebate were immediate rather than taking several weeks to process.*
- *If they're looking for high efficiency stuff, they're not dying for that \$200 to \$300 rebate.*
- *If you could spend twice the money for a top of the line furnace, what's \$200 to you?*
- *I don't think the rebate is all that helpful because most people are predetermined to purchase high efficiency equipment.*
- *High efficiency furnaces should again qualify for the program. The amount of the incentive could be made proportionately larger for higher efficiency models.*
- *The Federal government offers a higher incentive, so that is more helpful.*
- *I'm no longer actively promoting the program.*
- *As a builder of new construction, we decide what type of unit goes into the homes we build.*
- *The rebate is no help at all. I had forgotten that it even existed. My customers, primarily landlords, are more concerned with the upfront cost of the unit rather than long term energy efficiency.*
- *It's not a factor since we get all the rebate dollars.*
- *I am not a salesperson.*
- *From 2008 to 2011 the rebate was very helpful, but the latest rebate form isn't worth the labor and hassle for us to process it.*

Those who offered scores of 8 or higher provided the following additional comments.

- *Anything that helps make the sale is appreciated.*
- *The rebate isn't the main factor but it does have some influence on people's decision-making process.*
- *Customers appreciate getting a little money back in the form of a rebate.*
- *The rebate is helpful because it helps lower the cost of the unit, which is a great selling point.*
- *If they need it, they're going to get it, but it's nice to be able to offer the rebate. It's the icing on the cake, so to speak. They get a little something back, which helps.*

- *When searching for trade allies on the Duke website using zip code, the resulting list should be alphabetized rather than in nonsensical random order.*
- *The Duke rebate and government tax credits are very helpful. I used to sell more equipment when the rebate was higher. Re-institute the rebate offer for high efficient furnaces.*
- *The amount of the rebate often nearly makes up for the difference in cost for buying the next higher efficiency model.*
- *I never had any problems with it. Keep it on.*
- *When gas furnaces were receiving rebates last year that added a greater incentive.*
- *It's a 9, but that's part of the package as a whole. It makes a difference and people are thrilled that Duke gives them a check and not a credit on their bills.*
- *I know people enjoy anything they can get back.*
- *The rebate can be very helpful in persuading people that are 'on the fence' over which model to purchase.*
- *Any money back offers are helpful. The high quality of the energy efficient models is a key selling point also.*
- *The rebate is helpful in persuading people to get the more efficient ECM air circulation blower.*
- *The rebate is very helpful because people are always looking for ways to save money.*
- *It's definitely helpful. I've definitely had customers compare the 80% versus the 90% and the rebate helps them make that decision.*
- *Being able to offer the rebate is an attractive bonus. Duke should reinstate the furnace rebate because they're the most impactful, energy-wise.*
- *The rebate is helpful because it reduces the overall cost of the unit.*
- *It's just a shame it's gone away.*
- *It is a definite benefit and one of the foremost things they wanted, the people who already knew about the program.*
- *Anytime a customer can get a little money back is a good thing.*
- *If someone is on the fence over which model to choose the rebate can often be the deciding factor.*

Trade Ally Satisfaction with the Program

Overall trade allies are satisfied with the program, despite the number of suggestions that they offered in the *Trade Ally Interviews* section above. Survey respondents returned a mean satisfaction rating of 7.8. Most notably, 40.5% rated the program a 10 and a combined 67.1% giving the program a score of 8, 9, or 10 as shown in the figure below.

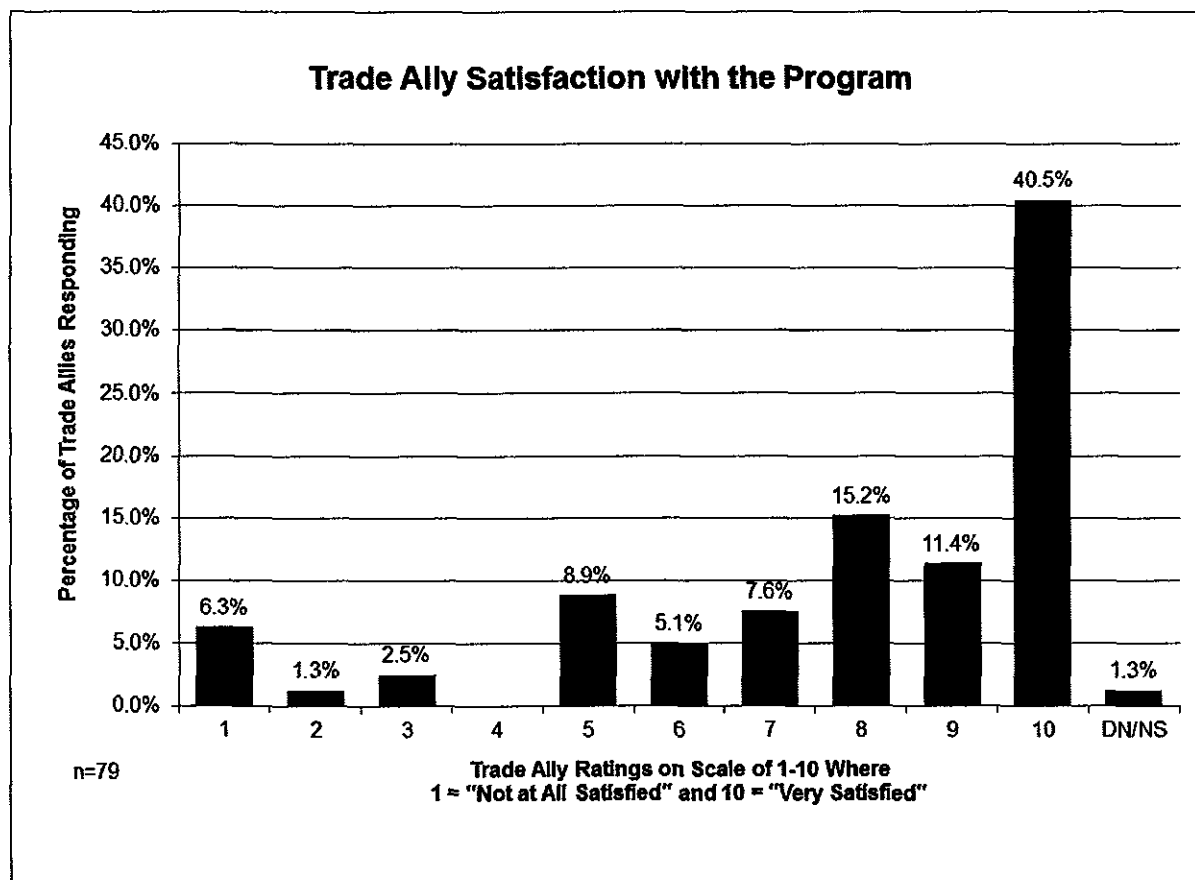


Figure 10. Trade Ally Satisfaction with Program

Difficulty with the rebate applications and associated paperwork was the most commonly cited reason among those who provided lower scores. Other reasons included the need to re-register for the program, difficulty using the web portal, difficulty obtaining help via telephone, response time to email inquiries, and dropping the gas furnace rebates. A list of verbatim replies is shown below.

Scores of 7 or Less

- *It's only a 7 since they've discontinued the gas units.*
- *The forms and a few glitches in getting the rebates bring it down to a 7.*
- *The program was better when it offered rebates for furnaces, heat pumps, AND air conditioners. Also, I disliked rebate process because it lacked information and appropriate feedback in cases when the form wasn't submitted correctly.*
- *It's been a learning process and there's been a lot of rejected applications because of changes. But, customer service in Georgia has been awesome; they're very patient and attentive. It's not their fault that we're having to touch something two or three times on our end.*

- *One, the application is not that simple to get through, and two, the large equipment doesn't qualify, like equipment with a 16 SEER rating. So, I tell my customers about the rebate only to have to come back to them and tell them it didn't qualify.*
- *They cut the commission in half and doubled the paperwork.*
- *For some reason I needed to re-register as a trade ally with Duke. This laborious process required 12 phone calls and 2 emails.*
- *It's only a five because they dropped the gas rebates.*
- *I don't understand why Duke lowered the amount of the rebate.*
- *The Duke website for submitting Smart Saver rebates is outdated and lacks clear instructions and information. I had to call customer service to get help.*
- *The information is not clear on the website about how the customer will receive the rebate. The paperwork instructions could be clarified.*
- *Because of all the paperwork and it's very time-consuming.*
- *I wish the rebate for A/C was higher because once they see what they'll have to spend on equipment related to the furnace, and how it's often connected to their A/C, then realize they should replace the A/C as well, they choose a lower-efficiency A/C unit to help keep the cost lower. The rebate doesn't provide enough incentive.*
- *I just think it's a lot of hoops and stuff to jump through. You've got people like myself who aren't HVAC installers who are try to figure out what the AHRI is for the systems. A lot of times, I don't know what the systems that are being removed, like I don't know type of coil, A/C, furnace, or whatever that proves that the new furnace is an upgrade. I have to get on the guys to give me information before they take the units that are removed for recycle. It's really frustrating.*
- *Duke could improve its customer service. For example; one phone inquiry transferred me 5 or 6 times. Also, there was confusion over which fax number is correct to submit rebate forms through. The latest rebate form requires too much information, a lot of which seems personal and/or proprietary.*
- *This current year I am quite dissatisfied with the program. The second page of the rebate application is cumbersome. Also, eliminate the need for a copy of the paid invoice. The employees that process the applications need to use more common sense.*
- *The old rebate form, in its ease and simplicity, was much better. The new form requires too much information and seems intrusive about the proprietary operations of our business.*
- *Last year, when I was doing the program, it was no problem. This year, I didn't even know we were knocked off the program as of the first of January. I had to reapply and I'm still not sure if we're part of the program. I don't like the new forms. The forms are much longer and they want more information than what's necessary. If we're sending a AHRI certificate along with the information, what more should they need? I've called the Smart Saver Program three times with my concerns and have yet to receive a call back. I've given them ample time to get a hold of me and have heard nothing. I don't know what's*

happening and I haven't even put in anything for the last two months because I haven't heard anything and don't know if we're part of the program anymore. It's pretty sad, isn't it? I wonder how many other companies don't realize that they've been knocked off the list. This is why I'm so dissatisfied.

- *I was much more satisfied before Duke discontinued the furnace rebate.*
- *The amount of the rebate is too small and I dislike doing the paperwork.*

Scores of 8 or Higher

- *I'd really give it an 8.5. Now it's just more cumbersome than it was before.*
- *The program is hassle-free and the customers appreciate the rebate.*
- *The rebate process for new installs is smooth and the \$100 incentives are nice.*
- *I preferred the simplicity of the old rebate form. The new rebate form is too complex; requiring unnecessary information. What is the purpose of asking for the serial # off a 30 year old furnace?*
- *I appreciate the program but it should include more types of equipment and make the form submission process easier.*
- *I have always been treated well and have never had any problems with the program.*
- *We like the program, but the latest rebate form is too confusing. It was better before when it was all on one page. Duke could also be quicker to respond to inquiries. It shouldn't take 1-2 weeks to receive a response to an email.*
- *The rebate form can be challenging, requiring model and serial numbers. It's hard to keep up with all the information supplied by our manufacturers and the requests from Duke.*
- *It's not quite a perfect 10 since there was a learning curve with the new paperwork.*
- *Overall I like it, but I'd like an easier process for submitting the data. Online is easier than faxing, but still it's a pain.*
- *I am satisfied, though the program has become more intrusive, requiring more documentation. Also, the new online form submission process keeps erring out and needs to be fixed.*
- *The program has steadily improved though it could provide more education about any changes so that customers are more clearly informed as to what qualifies and what they can expect to receive.*
- *I am very satisfied. In fact we just re-applied with Duke to continue offering the program.'*
- *I have been working with the program for a couple years and think it's great. There have been steady improvements made to it over that time.*
- *The forms aren't that easy.*
- *I am very satisfied because the rebate form submission process (via mail) is easy.*

- *I am very satisfied because the rebate offer helps us make sales.*
- *I don't have any problems with the program though I did prefer the old rebate form more than the newer one.*
- *The rebates help us sell the equipment.*
- *I am very satisfied because I enjoy participating in the program and getting money back.*
- *The program is easy to use and we get money back.*
- *The rebate helps the consumer to get a little something back and helps us to sell them. Everybody likes to get money.*
- *It's something you guys don't have to do and it's definitely good customer relations.*
- *I never have to deal with Duke Energy after sending in the paperwork. The process is simple and the customers really hate getting the post-inspections from DP&L, which Duke Energy doesn't do. I mean, it doesn't really bother us, but customers really don't like being inspected.*
- *We are very satisfied because Duke is quick to respond to inquiries and they work well with us.*
- *I love the program but the paperwork could be improved. The little checkbox squares are too small and the entire form should be on one page.*
- *When I submit it, they pay it. It's not a big deal. Their forms could be a little easier.*
- *I am very satisfied with the program and my customers appreciate the rebates.*
- *I am very satisfied because I have never had any problems with the program and it helps increase business.*
- *I am very satisfied because the program is easy to participate in.*
- *I am very satisfied because the program is very user friendly, though I did have difficulties finding out who my proper Duke contact person was when we started doing Commercial rebates.*
- *The program is quick, easy, and it's a good selling point.*
- *I never had any problems with it. I would like to see that come back. I was very disappointed to see it go. It was a nice incentive.*
- *It's a nice program.*
- *I have never had any problems with the program.*
- *They've improved quite significantly since they first started offering the program. Way back when, they were just terrible. If you didn't dot an 'i' or cross a 't,' they threw out your application and didn't notify you that they were doing it.*
- *I am very satisfied because the program is easy to use online.*
- *Form works well for us now that we figured out the unit they want is the coil and not the furnace. We'd like a one page form though. They told us what we need so that's good.*

Evaluation Findings and Survey Recommendations

Evaluation Findings

According to the trade allies we spoke with, a near majority (47%) indicated that they filed less than 20 rebate applications per year, while 20% of trade allies filed 100 or more per year, including one trade ally that filed 1,302 rebate applications. The median number of applications filed was 20. Some trade allies reported that their rebate volumes had waned since the rebates for gas furnaces in Ohio had been eliminated.

Roughly an even amount customers were replacing failed units versus still functioning units. The distribution differences appeared to be influenced by the levels of income in the communities that the trade allies worked in, with less affluent customers preferring to wait until their units failed while more affluent customers were more inclined to opt for upgrades of still functioning equipment. A small number of trade allies dealt in new construction and thus were not involved with replacements.

When asked to estimate the percentage of their efficiency sales that were rebated through the program, trade ally responses spanned the spectrum from 1% to 100%. Distribution was skewed toward both ends of the spectrum with 30% of respondents rebating at least 9 out of 10 high efficiency units, while more than a third of trade allied filed applications for fewer than 3 in 10 of their high efficiency sales. Reasons for this included working predominantly in other utility service areas; the elimination of the furnace rebate hurt their applications numbers; and a dislike for the new rebate paperwork.

Trade allies generally felt that customer awareness of the program was low (mean estimated awareness of 28%). Most trade allies said that they regularly mention every rebate and tax credit available. So if a customer was not aware of Duke Energy's offering before talking with one trade ally, then they were aware by the time of they received a bid from the next trade ally they spoke with. A few trade allies mentioned that their customers knew about the program because they "did their research in advance," particularly when considering heat pumps.

A majority (52%) of trade allies estimated at 9 out 10 of their customers would have made a similar purchase without the Duke Energy rebate. This finding makes the program appear to have high freeridership, but there are complicating factors involved, including monies from other incentives, limited customer awareness of the rebate's existence, and offsetting findings from other survey questions, including those noted in the paragraph below.

Nearly one third (32%) of trade allies scored the influence of the rebate on customer purchases of high efficiency equipment as an 8, 9, or 10. Other factors considered more influential than the rebate included: the final purchase price, the reputation of the trade ally, the unit's efficiency rating, potential monthly bill reductions, and operating costs for equipment.

Twenty one percent of trade allies ranked the helpfulness of the rebate for making a high efficiency sale with a 9 or 10, and a combined 58% rated the rebate's helpfulness as a 7 or higher. Trade allies estimated that few than one quarter (23%) of their customers had opted for a lower efficiency unit after learning of the rebate.

Although trade ally representatives and phone support providers scored well in the interview section above, their timeliness and responsiveness to customer requests were cited among reasons for dissatisfaction among survey participants. Nonetheless, overall trade allies report that they are satisfied with the program, with two thirds (67%) rating the program an 8, 9 or 10, and rendering a mean satisfaction score of 7.8. Difficulty of paperwork was the primary reason cited for diminished scores. Other reasons included the need to re-register for the program, difficulty using the web portal, difficulty obtaining help via telephone, response time to email inquiries, and dropping the gas furnace rebates.

Recommendations

Based upon the above mentioned survey findings TecMarket Works recommends the following:

- Simplification of the rebate application— or at least better explanations about what is required and why— may help to improve satisfaction among trade allies. It may also increase rebate levels since a small number of trade allies reported discontinuing their participation due to their dislike of the new paperwork.

Participant Surveys

Participation in Duke Energy's HVAC Smart \$aver Program

As indicated in Table 4, about half of surveyed participants in Ohio and Kentucky received rebates for installing heat pumps (50.3% or 81 out of 161) and about half received rebates for central air conditioning (49.7% or 80 out of 161), due to quotas established to interview at least 80 customers who received rebates for each type of cooling unit. By state, 15.5% (25 out of 161) of surveyed participants live in Kentucky and 84.5% (136 out of 161) live in Ohio. All surveyed participants in Ohio and Kentucky received one rebate per household.

Table 4. Rebated Units Installed by Participants by State

Participants by unit installed	Ohio Participants (N=136)		Kentucky Participants (N=25)		All Surveyed Participants (N=161)	
	N	%	N	%	N	%
Installed Heat Pump	71	52.2%	10	40.0%	81	50.3%
Installed Central Air Conditioning	65	47.8%	15	60.0%	80	49.7%

Awareness of the Smart \$aver Program

All surveyed customers in Ohio and Kentucky recall participating in the Smart \$aver HVAC program (100% or 161 out of 161); this was a requirement for participating in the survey.

As Table 5 indicates, overall about three-quarters of participants first found out about this program from a contractor or salesperson (78.9% or 127 out of 161). Another 13.0% (21 out of 161) learned about the program through brochures from Duke Energy, and 5.6% (9 out of 161) became aware of the program via the Duke Energy website. Compared to those who installed central air conditioning, customers who received rebates for installing heat pumps are more likely to mention the website (8.6% or 7 out of 81) and work experience (3.7% or 3 out of 81), and are less likely to mention trade allies (69.1% or 56 out of 81; all differences significant at $p < .05$ using student's t-test).

Table 5. Source of Awareness of the Program

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
From a trade ally (contractor or salesperson)	69.1%	88.8%	78.9%
Brochure from Duke Energy	14.8%	11.3%	13.0%
Duke Energy Web site	8.6%	2.5%	5.6%
Word of mouth (friends, family, neighbors, etc.)	4.9%	1.3%	3.1%
Current or previous work experience (HVAC, contracting, lighting, etc.)	3.7%	0.0%	1.9%
Manufacturer's website	2.5%	0.0%	1.2%
Advertising	0.0%	0.0%	0.0%
Other source (listed below)	1.2%	3.8%	2.5%
Don't Know/Can't Recall	2.5%	2.5%	2.5%

Percentages may total to more than 100% because participants could give multiple responses.

Four survey respondents (2.5% of 161) mentioned other sources of awareness, which are listed below by rebated unit.

Rebate for heat pump (N=1)

- *We attended the Cincinnati Home and Garden Show where we saw information from The Greater Cincinnati Energy Alliance.*

Rebate for central air conditioning (N=3)

- *Radio.*
- *A marketing company called me.*
- *When I got the rebate check in the mail.*

Gathering Information about Duke Energy's Smart Saver Program

Once aware of Smart Saver, most program participants did not seek additional information, as seen in Table 6. Overall, 85.7% (138 out of 161) felt they had enough information about the program, and only 13.0% (21 out of 161) sought out more information. The most common method of gaining additional information about the program is to visit the Duke Energy website (overall 6.2% or 10 out of 161, which is 47.6% of 21 participants who sought additional information).

The only significant difference between heat pump and central air conditioner rebate recipients seeking more information is that heat pump installers were more likely to have contacted a trade ally (6.2% or 5 out of 81; significantly higher than 0.0% of 81 air conditioning installers at $p < .05$ using student's t-test).

Table 6. Did You Do Any Additional Investigation to Confirm the Program's Offering?

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Total not needing additional info	82.7%	88.8%	85.7%
The information provided was adequate	74.1%	86.3%	80.1%
Didn't need to confirm anything	23.5%	7.5%	15.5%
Total seeking additional info	16.0%	10.0%	13.0%
Went to the Duke Energy web site	7.4%	5.0%	6.2%
Called or emailed Duke Energy	2.5%	2.5%	2.5%
Called or emailed a trade ally	6.2%	0.0%	3.1%
Other (listed below)	3.7%	2.5%	3.1%
Don't know	1.2%	1.3%	1.2%

Percentages may total to more than 100% because participants could give multiple responses.

Five out of 161 survey respondents (2.5%) volunteered "other" forms of investigation into Smart Saver, which are listed below.

Rebate for heat pump (N=3)

- *As a contractor, I went to the Duke Energy training on it.*
- *I called Dayton Power & Light.*
- *The contractor told me to look online for more information.*

Rebate for central air conditioning (N=2)

- *I asked friends, neighbors, and coworkers about their experience with the program.*
- *We were already aware of the program because we had participated in the past.*

The 21 surveyed customers who sought out more information are unanimous (100% of 21) in reporting that they were able to acquire a more complete understanding of the program through their efforts, as seen in Table 7. Overall, after seeking additional information if needed, only 1.9% (3 out of 161) of all survey respondents felt they still had unanswered questions about Smart Saver.

Table 7. Acquiring a More Complete Understanding of the Program by Seeking Additional Information, and Unanswered Questions about the Program

Base: survey respondents who sought additional information	Heat Pump (N=13)	Central Air Conditioning (N=8)	All Surveyed Participants (N=21)
Was able to acquire a more complete understanding of the program	100.0%	100.0%	100.0%
Was NOT able to acquire a more complete understanding	0.0%	0.0%	0.0%
Don't know	0.0%	0.0%	0.0%
Base: all survey respondents	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Had additional questions that were not answered	3.7%	0.0%	1.9%

Three Smart Saver participant in this survey (1.9% of 161) said they still had additional questions about the program; their descriptions of these additional questions are listed below.

- *I had a few more questions about the program incentive forms.*
- *The Duke website needs to more clearly specify that only Duke-approved contractors are qualified to offer the incentive program.*
- *The unanswered questions I had were mainly about the competing energy providers that are constantly vying for my business.*

Overall, 92.5% (149 out of 161) of participants did not contact Duke Energy with questions during their participation in the Residential Smart Saver program as indicated in Table 8. Only 0.6% (1 out of 161) reported that they contacted Duke Energy and still had unanswered questions, while 6.2% (10 out of 161) reported contacting Duke Energy and having their questions handled effectively. Of the eleven participants in this survey who contacted Duke

Energy during participation, overall ten (90.9%) reported that their questions were answered effectively.

Table 8. Contacting Duke Energy While Participating in Smart Saver

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Contacted Duke Energy during participation in Smart Saver and questions were handled effectively	9.9%	2.5%	6.2%
Contacted Duke Energy during participation in Smart Saver and still had unanswered questions	1.2%	0.0%	0.6%
Did not contact Duke Energy during participation in Smart Saver	87.7%	97.5%	92.5%
Don't know / can't recall	1.2%	0.0%	0.6%

Receiving Rebates for Participation in Smart Saver

When it came to filling out the incentive forms for Smart Saver, the pattern is very similar to where respondents indicated they first became aware of the program: most mentioned trade allies (80.1% or 129 out of 161).

Only 11.2% (18 out of 161) of program participants filled out the forms themselves. Among those who did fill out the form themselves, participants were unanimous (100% of 18) in their opinion that the form is easy to understand.

Customers who installed central air conditioning were more likely to have a trade ally fill out the forms (86.3% or 69 out of 80), while those who installed heat pumps were more likely to do it themselves or have another member of the household do it (combined 21.0% or 17 out of 81; these differences are both significant at $p < .05$ using student's t-test).

Table 9. Who Filled Out the Incentive Forms

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Trade allies (contractor or salesperson)	74.1%	86.3%	80.1%
Survey respondent ("I did")	13.6%	8.8%	11.2%
Another member of the household	7.4%	1.3%	4.3%
Someone from Duke Energy	1.2%	0.0%	0.6%
Trade ally and customer together	2.5%	2.5%	2.5%
Don't know	1.2%	1.3%	1.2%
Of those who filled out the incentive form themselves:	N=11	N=7	N=18
Incentive form was easy to understand	100%	100%	100%

Table 10 shows that trade allies were also the most likely to submit the incentive forms for Smart Saver participants in this study (80.7% or 130 out of 161). Another 13.0% (21 out of 161) of

surveyed customers submitted the forms themselves, which is not significantly different than the percentage of customers who filled out the forms themselves (11.2% or 18 out of 161, as seen in Table 9).

Table 10. Who Submitted the Incentive Forms

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Trade allies (contractor or salesperson)	77.8%	83.8%	80.7%
Survey respondent ("I did")	12.3%	13.8%	13.0%
A family member	6.2%	1.3%	3.7%
Someone from Duke Energy	1.2%	0.0%	0.6%
Don't know	2.5%	1.3%	1.9%

Overall, 87.6% (141 out of 161) of program participants reported no problems receiving their rebates, as seen in Table 11. Nearly equal numbers of survey respondents were certain they received additional federal or state tax credits (39.1% or 63 out of 161) and certain they did not (38.5% or 62 out of 161), while 22.4% (36 out of 161) were not sure if they received any tax credits or not. Customers who installed heat pumps were more certain that they had received tax credits (49.4% or 40 out of 81), though this is partly due to air conditioner rebate recipients being more likely to not be sure if they received tax credits or not (30.0% or 24 out of 80; both differences significant at $p < .05$ using student's t-test).

Table 11. Receiving Rebates and Tax Credits

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Did NOT have problems receiving the rebate	87.7%	88.8%	87.6%
Had problems receiving the rebate	11.1%	6.3%	8.7%
Did not receive a rebate ⁷	1.2%	2.5%	1.9%
Don't know	0.0%	2.5%	1.2%
Received state or federal rebate as well	49.4%	28.8%	39.1%
Did NOT receive state or federal rebate as well	35.8%	41.3%	38.5%
Don't know	14.8%	30.0%	22.4%

Fourteen respondents (8.7% of 161) reported that they had a problem receiving their Smart Saver HVAC rebate. Their verbatim descriptions of these problems are listed below; customer complaints generally involve delays getting rebates due to delays getting the paperwork approved, which in turn is frequently due to delays with the contractors submitting the forms. All fourteen surveyed customers who reported problems receiving their rebates report that these issues were eventually resolved.

Rebate for heat pump (N=9)

- *The contractor had problems filling out his part. He took so long Duke said I couldn't*

⁷ The evaluation team and Duke Energy have confirmed that these customers have all been issued rebate checks.

get the rebate anymore. Thankfully, Duke customer service helped and I got the rebate.

- *Our contractor did not submit our paperwork in a timely manner. Eventually they did and the rebate arrived promptly.*
- *The contractor needed to clarify with Duke that the new heat pump qualified for the incentive program.*
- *I think we had to amend and re-send our rebate paperwork at least four times before Duke finally approved it.*
- *The woman who filled out and submitted my information entered something incorrectly, I think it had to do with my source of back-up fuel, or she just did not have the proper information, and she had to resubmit my form. After that was corrected and resubmitted, everything was fine, but it did set back my application by about 3 weeks.*
- *I was put in between my contractor and Duke Energy and fed differing information on each front. The rebate situation was eventually resolved but it was time-consuming and unpleasant.*
- *I only received half. I had to call and found out half was coming from Duke and half was coming from another company: Carrier. I got the other half and it was resolved.*
- *It took a while, around 3 months, but we did get the rebate.*
- *There was confusion over which name the account was in. This supposedly delayed the rebate check, but was eventually resolved.*

Rebate for central air conditioning (N=5)

- *Our application seemed to have fallen through the cracks with our contracting company, they submitted it much later than when we had originally filled out the application. This was not the fault of Duke Energy. Eventually our contractor had the application sent in and we did receive our rebate in due time.*
- *I did not get my rebate in the time the salesperson said I would have received it, so I called the salesperson about it. After I did that follow-up call with the salespeople I did receive my rebate check. Perhaps they were slow on submitting my application.*
- *The rebate took a little longer than I had expected so I did call the contractor. The check did arrive shortly afterwards. I received the check within a month of the installation of the A/C unit.*
- *There was a breakdown between Duke and the contractor. There were problems with how the paperwork was being handled between Duke and the contractor. The air conditioner was replaced in 2011, and we did not receive the rebate until a year later. Eventually, everything was resolved.*
- *Rebate was initially denied because post office had marked our residence as an apartment, and I had to correct the information and say it was a condominium. After calling, they sent the rebate.*

Problems Receiving Rebates by Quarter

The installation dates for the rebated units are shown in Table 12 categorized by quarters of the

year. The largest number of surveyed customers installed units during the second quarter of 2013 (33 customers), and the smallest number during the first quarter of 2012 (14 customers), though the numbers per quarter on the whole are quite consistent (averaging 27 customers per quarter).

Table 12. Number of Survey Respondents by Quarter Rebated Unit Was Installed

Number of Respondents per Quarter Rebated Unit Was Installed	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Q1 2012	10	4	14
Q2 2012	17	14	31
Q3 2012	11	19	30
Q4 2012	12	17	29
Q1 2013	15	9	24
Q2 2013	16	17	33
Missing data	0	0	0

Recall from Table 11 that overall 8.7% (14 out of 161) of surveyed program participants reported problems receiving their rebates. Figure 11 charts the percentage of rebates with “problems” according to the quarter the rebated unit was installed. The overall rate of survey respondents reporting problems with rebates per quarter installed ranged from 0% (first quarter of 2012) to 16.7% (first quarter of 2013). Based on this very small sample of six quarters, the average rate of problems reported per quarter is 8.2% and the 90% confidence interval is +/-4.7%; both the highest (16.7%) and lowest (0.0%) quarters fall outside of the 90% confidence interval. This indicates that the rate per quarter across these six quarters is highly variable.

Furthermore, there is extremely high variability by rebated unit, with 26.7% (4 out of 15) of heat pump installers reporting rebate problems with Q1 2013 installations while none (0 out of 9) of the customers who installed central air during that same quarter reported a problem. Similarly, there were no customers (0 out of 23) who installed heat pumps during the last half of 2012 who reported rebate problems, while 11.1% (4 out of 36) of air conditioner installers during the same period reported having problems.

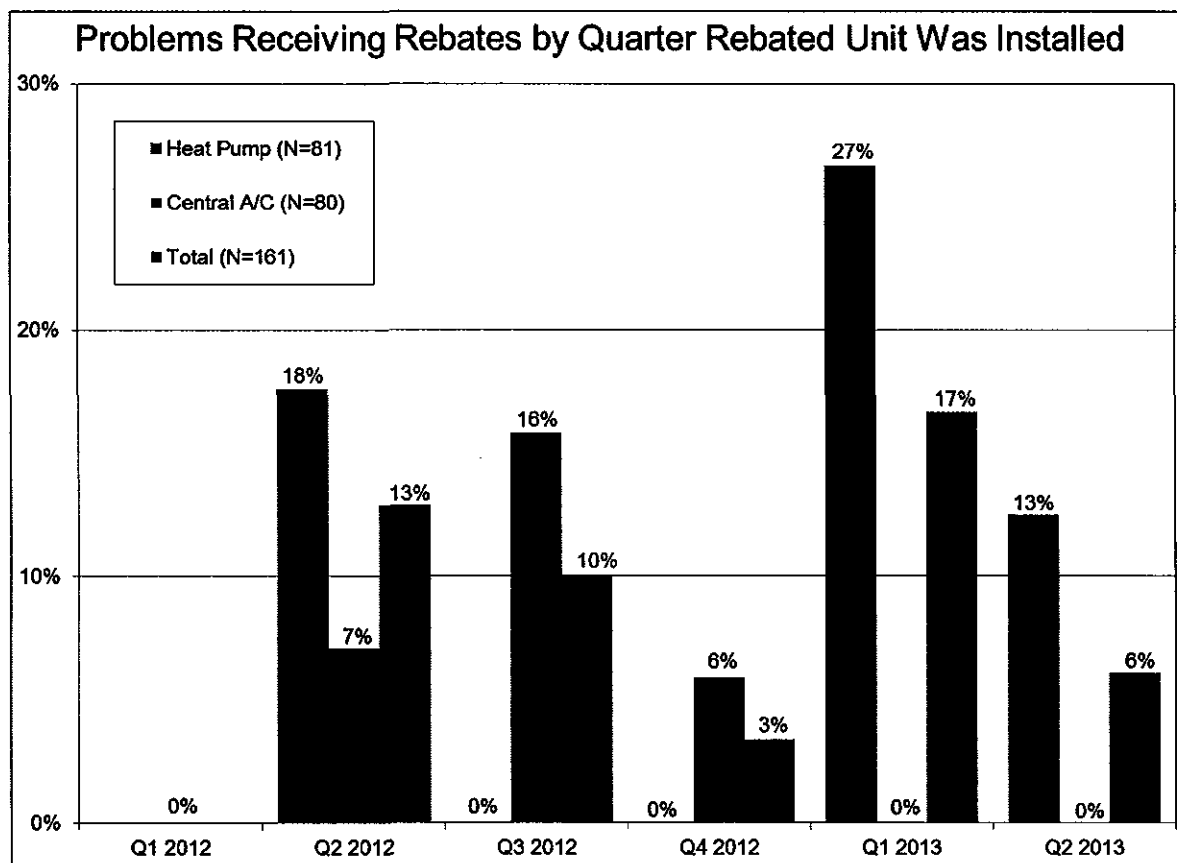


Figure 11. Problems Receiving Rebates by Quarter Rebated Unit Was Installed

Customer Satisfaction with the Residential Smart \$aver Program

Table 13 shows the average satisfaction ratings for five aspects of this program, as well as overall satisfaction with the program and with Duke Energy. On a 10-point scale where “10” means very satisfied, customers give Smart \$aver high satisfaction ratings, averaging between 8.2 and 8.5 for all aspects inquired about and 8.83 for the program overall. Satisfaction with Duke Energy overall is also high, averaging 8.47 across all surveyed participants.

There are two statistically significant difference by the type of unit purchased; customers who received rebates for air conditioning (8.60) were more satisfied with the amount of the rebate than customers who received rebates for heat pumps (7.86; this difference is significant at $p < .05$ using ANOVA), and among those who were involved in filling out the paperwork air conditioner installers were also more satisfied with the ease of filling out forms (9.56) compared to heat pump installers (7.84; this difference is significant at $p < .10$ using ANOVA, although only a minority of customers answered this question, since the forms were more often completed by

contractors and salespeople⁸).

Table 13. Average Satisfaction Ratings for Smart Saver and Duke Energy

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Satisfaction with the information provided explaining the program	8.46	8.54	8.50
Satisfaction with the number and kind of technologies covered	8.38	8.55	8.45
Satisfaction with the ease of filling out the form to receive the rebate (Base: N=28 respondents involved in filling out forms)	7.84 (N=19)	9.56 (N=9)	8.39 (N=28)
Satisfaction with the time it took to receive the rebate check	8.27	8.37	8.32
Satisfaction with the amount of rebate provided by the program	7.86	8.60	8.23
Overall satisfaction with Smart Saver HVAC Program	8.75	8.91	8.83
Overall satisfaction with Duke Energy	8.37	8.58	8.47

Surveyed customers who gave ratings for specific aspects of the program of “7” or lower a 10-point scale were asked what could be done to improve the situation. These responses are listed below by rebated unit.

Four survey respondents (14.3% of 28 who were involved in filling out forms) rated the ease of filling out the rebate form at “7” or lower on a 10-point scale. Their suggestions for improving this aspect of the program are listed below.

Ease of Filling Out Form: Received rebate for heat pump (N=4)

- *For me, as a contractor, it does not pay with the amount of time it takes to complete. There is too much detailed information required, the form needs to be more streamlined and organized. It's crazy all the things you have to do to get the rebate. I see it as doing double the amount of work and getting not even half the commission.*
- *Streamline the entire program. A customer sending a copy of the sales receipt including model and serial numbers should be sufficient enough to process the rebate.*
- *The contractor had problems.*
- *The Duke website should be improved so that the incentive form is easier to fill out. The website should also show the projected long-term operating costs for units of different efficiency ratings.*

Twenty-three survey respondents (14.3% of 161) rated information explaining the program at “7” or lower on a 10-point scale. Their suggestions for improving this aspect of the program are

⁸ Twenty-eight surveyed customers were involved in filling out rebate forms. In addition to the 18 customers who filled out forms by themselves, this total also includes 6 cases where someone else in the respondent's household filled out the forms, and 4 cases where the customer and contractor filled out the forms together.

listed below. Many claim that they never got much information about the program in the first place and often fault the contractors for this, thus the most common suggestions are for more information and less dependence on contractors.

Program Information: Received rebate for heat pump (N=12)

- *Contractors could provide more information about the program.*
- *My contractor informed me of my eligibility, otherwise I would not have known anything about this program.*
- *I would have liked some more direct information to me personally. The contractor informed me; otherwise I did not know anything about this opportunity.*
- *There needs to be more information out there about the advantages of the Smart Saver program for Duke Energy's customers. I had no clue that this rebate existed, fortunately my contractor gave me the information.*
- *There was no information given to me. My contractor or salesperson or whoever filled out the forms for me did not tell me anything about the program or that they had applied for the program. I had no knowledge the program even existed. I was not expecting any sort of rebate.*
- *More education for vendors to avoid confusion and misinformation. At first, our vendor misstated the amount of rebate we would be paid as being \$300.*
- *The vendors could improve their professionalism and provide more information about the equipment and the incentive program.*
- *The MyHER could provide homeowners with more information about the Smart Saver program.*
- *There should be multiple mailings promoting the program.*
- *Don't know (N=3)*

Program Information: Received rebate for central air conditioning (N=11)

- *I didn't get any information. My contractor did it all.*
- *I didn't get much information from the salesperson; he was too busy trying to sell me his furnace and air conditioner.*
- *I like printed literature, so I can grasp it and read it a couple of times. The contractor did not have any printed literature and did not tell me about the rebate until after installation. I trust this contractor's judgment.*
- *I really didn't know much about the program. Before I spoke to the salesperson I wasn't even aware that the program existed. So an increase in advertising would probably help get more people interested.*
- *I really don't know any of the program details but the information I got from the salesperson was enough to get me to let them fill out the paperwork.*
- *I'd suggest more information be given at the point of sale so that we understood the variety of units covered and also the incentive that was offered for those particular systems.*
- *If the salesperson had some printed materials that I could look at, that would have been*

good. As it is, I took him at his word.

- *We did not know anything about the Smart Saver Program until after we spoke with the salesperson. This program should offer more information to their customers so they know about it before they go out and start looking at new heating or air conditioning units.*
- *We didn't get very much information about the program.*
- *Don't know (N=2)*

Twenty-three survey respondents (14.3% of 161) rated the number and type of technologies covered by the program at "7" or lower on a 10-point scale. Their suggestions for improving this aspect of the program are listed below. About a third of these customers (30.4% or 7 out of 23) had no comments or suggestions for improving this aspect of the program; the most frequently mentioned items customers recommend for inclusion in the program include water heaters and furnaces.

Number/Type of Technologies Covered: Received rebate for heat pump (N=13)

- *I would have liked if my new gas furnace had qualified for the Smart Saver rebate as well.*
- *Duke could include other types of technologies in the program, such as tankless water heaters and programmable thermostats.*
- *There could be more crossover with other Duke energy efficiency programs such as the Home Energy House Call.*
- *There should be a push to raise awareness of the program and make the information available.*
- *There should be more information provided by the program.*
- *Duke could provide more information about available technologies covered by the program.*
- *Duke Energy has a lot of stuff covered. I don't know why they have to get into all these small home energy efficiency programs. I suggest they do one thing and do it well, they should focus on larger projects that would have a larger impact on saving power, they should be more selective and efficient.*
- *Don't know (N=6)*

Number/Type of Technologies Covered: Received rebate for central air conditioning (N=10)

- *I thought my gas furnace would have qualified as an energy efficient heating source but it was not covered. I was actually expecting the gas furnace to qualify for the rebate because it is very efficient, and I was surprised that it did not qualify.*
- *Include more major appliances, like furnace or water heaters.*
- *Include other appliances like water heaters and refrigerators*
- *Include water heaters.*
- *It would be great if the program would cover more technologies, like water heaters.*
- *The program only covered certain kinds of A/C, when it could have covered more A/C*

units that were just as efficient.

- Have more units and more sizes available and eligible for rebates.*
- You can't expect the energy company to do it all. There are no incentives for other appliances.*
- I didn't even know there was a program.*
- Don't know*

Thirty-one survey respondents (19.3% of 162) rated the time it took to receive the rebate check at a "7" or lower on a 10-point scale. Their suggestions for improving this aspect of the program are listed below. Some customers blame the contractors for taking too long with the paperwork, some blame Duke Energy, and some blame both.

Time it Took to Receive Check: Received rebate for heat pump (N=14)

- I think the paperwork needs to be more informative. The person filling out my application was unclear of what information exactly was wanted. There was confusion as to a source of back-up fuel used in the heating system, I think, and the information the woman submitted was incorrect. My application and rebate process took an extra three weeks to be completed because of the set back.*
- It could have arrived a little quicker, it took about one month or maybe a little longer before I received my rebate. I actually kind of forgot about it and nearly threw the envelope out which contained the check when I finally received it in the mail.*
- The rebate turnaround should be within 30 days.*
- There needs to be better communication between contractors and Duke Energy. It should take no more than six weeks to receive the rebate.*
- It took me three or four months of back and forth communication with Duke to finally receive the rebate. The process should only take, at most, six weeks.*
- The ideal rebate turnaround would be two weeks.*
- The rebate turnaround could be three weeks or less.*
- I waited roughly eight weeks to receive my check. Optimally, the rebate should arrive within one month.*
- An ideal rebate turnaround would be two weeks.*
- I think it should take no more than 60-90 days to receive the rebate.*
- Applications take too long to be processed. Duke Energy needs something more streamlined. I suggest that they make it so that the form is only needed to be completed online, so all of the information is in one place and it will be easy to view the status of the application. There should be less paperwork, there is too much useless paperwork and printing and scanning of information. It's a very frustrating process.*
- I would like to be able to take the entire rebate amount off the cost of the unit upfront.*
- With a reputable contractor, there should be little need for Duke to send out an inspector to verify the installation of the new unit.*
- Don't know*

Time it Took to Receive Check: Received rebate for central air conditioning (N=17)

- *It took too long to receive the rebate. I waited months.*
- *It took a while; a few months.*
- *It took a while.*
- *It should take less time.*
- *If you cut the turnaround time in half, that would be great. Maybe three weeks instead of six; this is my only complaint about the program.*
- *Send the check out sooner, like as soon as make someone makes the purchase, so it is automatic.*
- *Send it sooner; but, I'm not sure how long it took Herman's Services to submit the paperwork.*
- *The rebate could have come sooner, maybe two or three weeks instead of months.*
- *The rebate could have come quicker*
- *You should get people their rebates quicker.*
- *I did not get my rebate in the time the salesperson said I would have received it, so I called the salesperson about it. After I did that follow-up call with the salespeople I did receive my rebate check. Perhaps they were slow on submitting my application.*
- *I don't know if there was a problem with our contractor or if there was an issue with Duke Energy but it took many months for us to get the rebate check.*
- *I had to contact Duke directly when we were not getting answers from the contractor who was supposed to have submitted the paperwork. It took us a year to get paid.*
- *The contractor had forgotten to put our account number on the forms so we didn't get it for quite some time. Once the error had been taken care of we got the check in three weeks.*
- *I don't know. I thought that the time it took to get the rebate check was average.*
- *Don't know (N=2)*

Forty-one survey respondents (25.5% of 162) rated the amount of the incentive at "7" or lower on a 10-point scale. Virtually all of them wish for the incentives to be higher, though some customers had additional ideas about how to improve the incentive payment amounts.

Rebate Amount: Received rebate for heat pump (N=25)

- *Incentive should be higher (N=9)*
- *A \$500 rebate would be preferable.*
- *The rebate should be between \$250 to \$500, depending on the unit.*
- *The rebate should be increased to \$500 for Geothermal units.*
- *If Duke Energy would increase the rebate, it would make it more enticing to replace both the A/C and the furnace. The increase should be \$300 for an air conditioner or \$700 to \$800 for the complete heating and cooling system. Also, I suggest to maybe double or triple what the contractor gets, if the incentive is larger for the contractor, they will push*

the program more.

- *A larger rebate incentive would have increased my satisfaction, especially considering that I purchased four units. Some rebates will give you more money back when you purchase multiple or larger items, this logic could be applied to the Smart Saver program.*
- *A larger rebate would have been nice. A new heating and cooling system is very expensive but if the rebate was larger perhaps more people would consider upgrading their system.*
- *Duke could offer a rebate based on a percentage of and/or the prorated cost of the system.*
- *The amount of rebate should be 10% of the unit purchase price.*
- *The amount of rebate should be between 10-15% of the total cost of the unit.*
- *The rebate could be 10% of the purchase price.*
- *The rebate should be, at minimum, 5% of the purchase price.*
- *The rebate could be higher, say 5% of the purchase price. There should also be an option take the rebate as an energy bill credit.*
- *The amount of the rebate could be based on a percentage of the sale.*
- *The amount of rebate could be based on the efficiency and cost of the unit.*
- *The amount the rebate should be proportionate to the efficiency rating of the unit purchased.*
- *Don't know*

Rebate Amount: Received rebate for central air conditioning (N=16)

- *Incentive should be higher (N=4)*
- *The rebate wasn't enough; they cut it down since last year. They may be because of the government.*
- *The salesperson said that the amount of the rebate was supposed to be much more. The rebate amount from Duke seemed to be what they had said but then the Federal rebate was much smaller than we were told.*
- *Have the rebate be a percentage of the overall cost, like 10% of the overall cost of the unit would have been really nice.*
- *I could have purchased a \$7,000 unit or a \$10,000 unit and the rebate would have been the same. It would be better if the rebate amount went up with the energy efficiency of the unit*
- *People will not spent thousands on a \$200 rebate; they buy it because they need it. It is nice that it's there, but the \$200 isn't a sway on a \$7,000 system.*
- *The A/C I installed was very expensive compared to some of the other ones that I could have gotten so I would have liked to get a larger rebate.*
- *The new A/C was very expensive compared to the rebate.*
- *I was completely surprised by the rebate, so I don't know how it could have been done better. It's not like I researched the program. I was taken completely by surprise.*

- *The rebate could have been higher when compared to the amount of the A/C.*
- *Don't know (N=3)*

As Figure 12 indicates, a plurality of Smart \$aver participants surveyed gave the highest possible “10 out of 10” score for their overall satisfaction with the program: 43.2% (35 out of 81) of heat pump rebate recipients and 50.0% (40 out of 80) for central air conditioning rebate recipients. Only ten participants surveyed (6.2% of 161) gave ratings of “5” or lower for their satisfaction with the program overall.

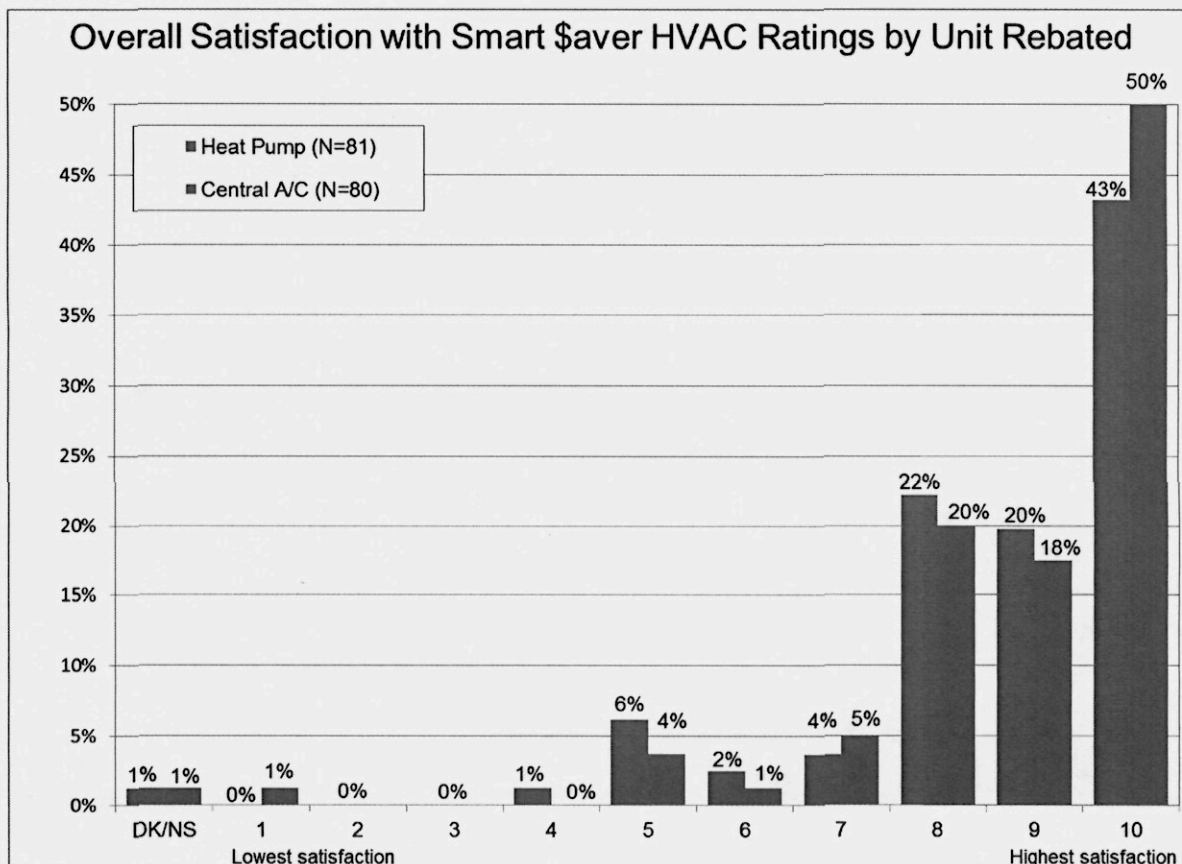


Figure 12. Respondents' Overall Satisfaction Ratings for the Smart \$aver Program

Twenty respondents (12.4% of 161) gave a rating of “7” or lower for their overall experience participating in the Smart \$aver program. The reasons they give for their lower satisfaction are listed below; most of these customers' complaints are about the incentive rebate.

Rebate for heat pump (N=11)

- *The amount of rebate could be slightly higher.*
- *Again, the rebate could have been larger.*
- *A larger rebate incentive would have increased my satisfaction, especially considering that I purchased four units.*

- *I think if we got to where it was a larger incentive or rebate amount, especially for the contractors, my satisfaction with the program would improve. If Duke Energy would increase the rebate, it would make it more enticing to replace both the A/C and the furnace. The increase should be \$300 for an air conditioner or \$700 to \$800 for the complete heating and cooling system. I suggest doubling or tripling what the contractor gets, if the incentive is larger for the contractor, they will push the program more.*
- *I would have been more satisfied if I had been more informed about the program.*
- *I would like the rebate to be 10% of the unit purchase price.*
- *The amount of the rebate is so small that it is hardly worth jumping through all the hoops to get it.*
- *There were countless delays and many hoops to jump through regarding the paperwork.*
- *There could be more effective contractor education about the program.*
- *Duke should offer standardized training and form alliances with organizations such as the Greater Cincinnati Energy Alliance.*
- *I had no expectations, because I had not known anything about the program, so that is why I rate it as a "5".*

Rebate for central air conditioning (N=9)

- *I had to call Duke Energy several times before receiving my rebate check.*
- *I really don't know much about the program, and I think the rebate could have come to me faster, but I'm pretty happy just to get the rebate.*
- *I didn't receive the rebate.*
- *Even though I purchased what was supposed to be an efficient system, I haven't seen any difference in my bill.*
- *Instead of a one-time rebate, I would like see a program that provided a decrease in my monthly bill over the course of the year after purchasing a new unit: say, 10% one month, 20% the following, and so on. A bill reduction would be much better for people who work.*
- *I thought the program was pretty average. There wasn't anything that was bad about the program, but there really wasn't anything awesome about it either.*
- *I'm more neutral about the program. Increase advertisement for the program to let people know about it.*
- *I don't remember the program as well as I could, but we had the A/C installed almost two years ago. I wouldn't say that I'm less than satisfied at a "7". I would say that I feel more neutral about the program than "less than satisfied".*
- *Don't know*

Figure 13 shows the distribution of ratings of satisfaction with Duke Energy overall. Pluralities of 34.6% (28 out of 81) of heat pump rebate recipients and 38.8% (31 out of 80) of central air conditioning rebate recipients gave Duke Energy the highest possible "10 out of 10" score. Only fourteen survey respondents (8.7% of 161) gave ratings of "5" or lower on a 10-point scale.

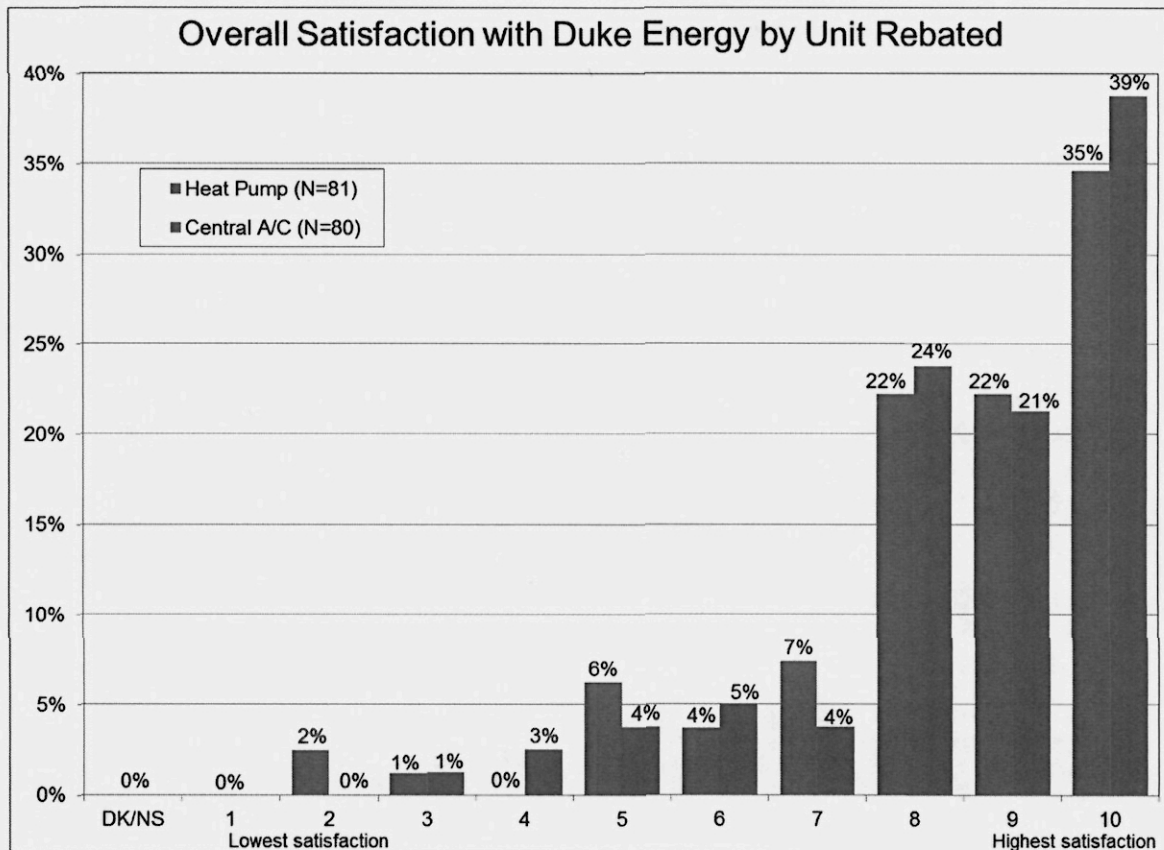


Figure 13. Respondents' Satisfaction Ratings for Duke Energy Overall

Thirty respondents (18.6% of 161) gave a rating of “7” or lower for their overall satisfaction with Duke Energy. The reasons they give for their lower satisfaction are listed below; rates, billing and power outages are the most frequent complaints, with customer service and business issues also getting some mentions. Only one surveyed customer (an air conditioner rebate recipient) mentioned a complaint against Duke Energy stemming from the Smart Saver HVAC program: they did not receive their rebate check.

Rebate for heat pump (N=17)

- *I find that Duke Energy's rates are too high, the rates should go down on kilowatts used.*
- *Duke should lower their rates, be more customer-orientated when you call with questions, and improve their overall integrity.*
- *I think Duke could do better at estimating peak energy use to make Equal Billing more consistent.*
- *We have a lot of power outages. I've lived in other places and have never experienced so many outages. We sometimes don't know even know why they occur. It happens even when there isn't a storm. We are told that a car hit a pole and reasons like that. The power outages are way too frequent.*
- *Duke is a big company and they are the only choice. It seems like a monopoly. I don't know how honest they are, and can't compare their rates.*

- *Duke should cease being a sociopathic corporate monopoly. Lessen the amount of pay for its executives and CEO. Provide more help to the homeless.*
- *I was less than satisfied because I question the accuracy of the new remotely-readable energy meters. Duke could improve customer relations, provide callbacks regarding service visits, improve meter accuracy, and repair gas leaks in a timely manner.*
- *My house got a new meter and it took a while, speaking to two or three supervisors, to straighten it out.*
- *I'm in a rural area that has more power outages. Last year it took seven or eight days to get the outage fixed. Duke could do more preventative things to avoid outages like cut down dead trees before a wind storm knocks them over.*
- *Duke charged a \$75 inspection fee for our gas line installation. I would have appreciated more clarity and communication regarding that, plus they should be able to add that directly to our monthly bill rather than sending a separate invoice.*
- *Duke should invest more in infrastructure upkeep and sustainable alternative energies.*
- *I had a problem with the power saving device installed on my cooling unit for Power Manager. When they installed the new heat pump the Power Manager device was deactivated or it just was not working. I was on the phone forever with customer service, and I ended up being transferred back to the same gal who answered my call and in the beginning and she was of no help at all. I found the customer service unsatisfactory.*
- *It was a pain dealing with Duke Energy during the renovation of my home. I had problems while installing the electricity. Duke Energy and their customer service have also given me trouble while I was trying to update my address information, it's still not totally correct. Also, during renovation, Duke refused to put a large enough gas line in for my house, so I was refused the option of having natural gas supplied to my house. Overall, their customer service is a pain the ass.*
- *When they come to do my home's meter readings, they don't schedule or let me know that I need to be there. I'd prefer an email notification of when they plan on coming to the house to read the meter. Also, about two years ago I was either trying to get my power turned off or on again during the renovation of my house and the customer service was very bad. I kept on getting passed off from one customer service representative to the next, I think I was on the phone cumulatively for over five hours. Duke's customer service made this all very difficult, yet it should have been a simple fix.*
- *I believe that Duke Energy's customer service stinks.*
- *Lower the rates.*
- *Don't know*

Rebate for central air conditioning (N=13)

- *I didn't receive a rebate for my new A/C. Also, there's something wrong with my bill because there's other companies listed on my Duke Energy bill: Direct Energy and Future Now Energy, and I'm getting charged by three different power companies. I don't understand what's going on and when I call no one is able to help me.*
- *I am having trouble with trying to figure out my bill. I am receiving two bills. One from Duke and one from Cinergy. Why am I paying two companies?*

- *Partially, I think they overcharge for the services provided. On a national scale, Ohio still has pretty low rates, but comparatively, they're overcharging by what I think is about 15%.*
- *After Progressive Energy took over, Duke was supposed to be better organized and less likely to raise rates. They're talking about a rate increase and when there is destructive weather, Duke's fix-it groups are always out of state so it takes longer to get power back than it should.*
- *I don't like that our bills have to go all the way to North Carolina, they should be going to Cincinnati.*
- *I'm not satisfied with Duke's business practices. But I'm not going to go into that with you, that's all I'm going to say.*
- *I'm still remembering when I was moving out of our old house and Duke Energy turned off our electric a couple days before we were supposed to move out and they would not send somebody back out to turn the power back on. I'm still a little upset about that past service and how Duke never did anything to fix our problem.*
- *My parents accidentally missed a payment while they were on vacation and when they got home their power had been turned off. They were late with their payment by about two weeks and they hadn't missed or been late with a payment before and they've had the same account for more than 30 years. It seems very callous to turn the power off on customers who hadn't made any transgressions in 30 years so quickly.*
- *For twenty years we were on the budget plan, and for the last two years we were getting \$600 back. This year we asked to have the monthly amount knocked down by \$50, since we didn't want to loan Duke free money, and we've also replaced the A/C system. The customer service person said there was nothing she could do; the calculation was based on a set formula. I wish she would have been given more authority to make that change, but instead we went back to pay-as-you-go monthly billing and since then have not had a monthly bill higher than the budget plan, even during peak use. If Duke were to reduce the monthly payment, we'd consider going back to the budget plan, but we won't let Duke have a \$600 loan for free. Also, we get a lot of energy company calls, not just Duke but from many other companies.*
- *We used to live in Indianapolis, and we did the budget program, and it generally worked very well. When we moved to Ohio, I did the budget program under CG&E. When Duke took over, they way overcharged me under the budget program. I asked Duke for the credit balance, and they gave me a hard time. Duke did finally send me a check, but in subsequent years Duke continued to be really bad about providing me with the balance; I had to fight them every time. I will never do the budget program with Duke again, even though I like it better. Duke just was not good about providing the balance. It has given me a negative attitude toward Duke Energy. I also did a job for years that involved a lot of accounting. I am good at budgeting. It was offensive dealing with Duke, they accused me of being wrong.*
- *Rates are too high / lower the rates (N=3)*

Program Satisfaction Ratings in Ohio

Program participants in Ohio were also asked to rate their overall satisfaction with Smart \$aver HVAC using a five-point Likert scale; these responses are shown in Figure 14.

A majority of surveyed Ohio customers give the highest possible “very satisfied” rating for the program (60.6% or 43 out of 71 heat pump rebate recipients and 69.2% or 45 out of 65 central air conditioning rebate recipients). Only two customers (1.5% of 136 Ohio customers surveyed) rated themselves as “somewhat dissatisfied” or “very dissatisfied” with the program.

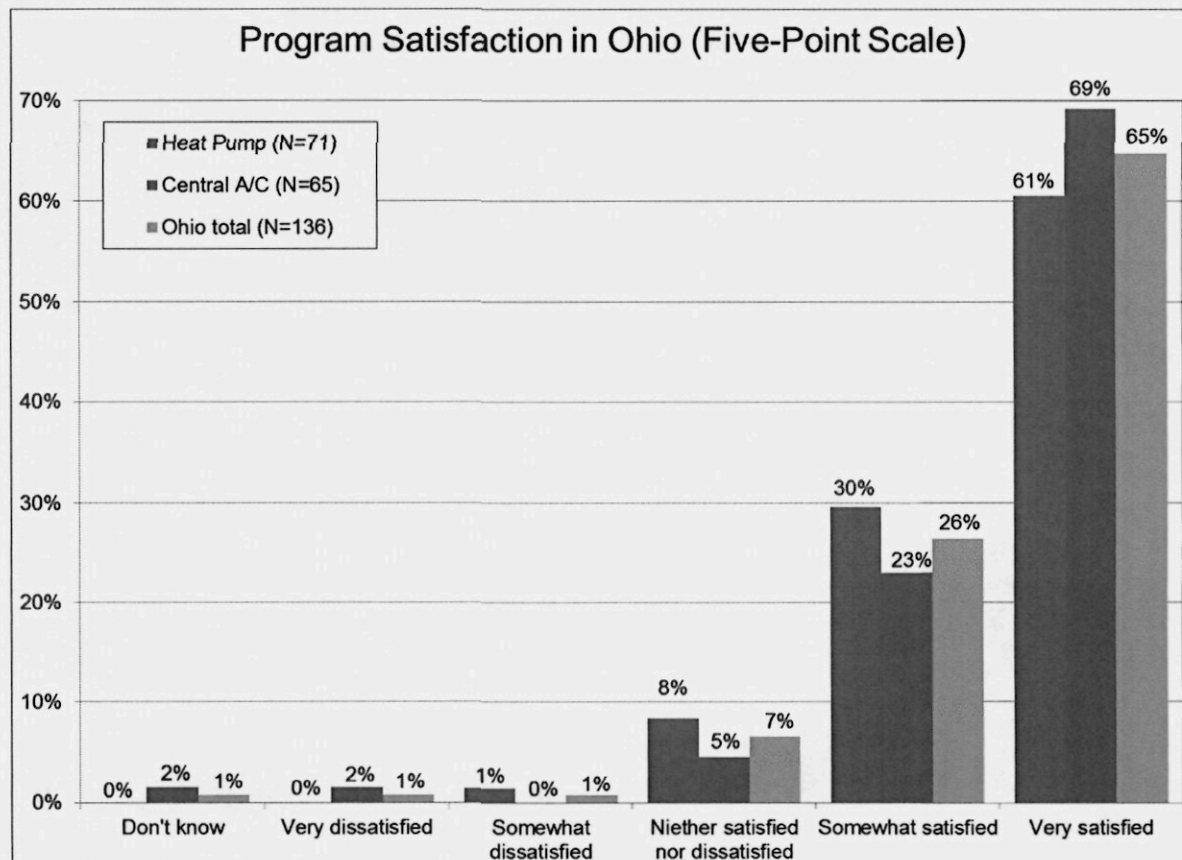


Figure 14. Ohio Respondents' Overall Satisfaction Ratings for the Smart Saver Program (Five-Point Likert Scale)

Customers surveyed in Ohio were also asked to explain why they gave the program the satisfaction ratings they gave; these 136 responses are categorized and listed in *Appendix F: Ohio Participants' Reasons for Program Satisfaction Ratings*.

Customer's Favorite and Least Favorite Aspects of Smart \$aver

The most popular feature of the Smart \$aver program, by a large margin, is the fact that it saves participants money immediately through a rebate from Duke Energy, mentioned by seven out of

ten survey respondents (70.8% or 114 out of 161). The next most frequently mentioned favorite things about the program are the ease of participation (11.8% or 19 out of 161) and that it allowed the purchase of a better unit (10.6% or 17 out of 161).

There are two statistically significant differences in Table 14: air conditioning rebate recipients were more likely to mention the incentive payment (76.3% or 61 out of 80), while heat pump rebate recipients were more likely to mention the ease of participation (18.5% or 15 out of 81; both of these differences are significant at $p < .10$ or better using student's t-test).

Table 14. What Customers Like Best about the Smart Saver Program

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Incentive rebate / money off cost of new unit	65.4%	76.3%	70.8%
Ease of participation	18.5%	5.0%	11.8%
Allowed the purchase of a better unit	8.6%	12.5%	10.6%
Saving money on bills	9.9%	8.8%	9.3%
Contractor or salesperson was helpful / did paperwork for me	4.9%	8.8%	6.8%
Saving energy / conservation	4.9%	7.5%	6.2%
That this program exists	3.7%	2.5%	3.1%
Duke Energy's concern for customers	3.7%	1.3%	2.5%
Like having a new unit / qualities of new unit	2.5%	1.3%	1.9%
Educational information provided	2.5%	1.3%	1.9%
Inspires other energy efficiency actions	1.2%	1.3%	1.2%
Quick payment turnaround	2.5%	0.0%	1.2%
Improved comfort in home	0.0%	1.3%	0.6%
Participation is free	1.2%	0.0%	0.6%
Don't know	1.2%	1.3%	1.2%

Percentages may total to more than 100% because participants could give multiple responses.

As seen in Table 15, overall 77.6% (125 out of 161) of respondents had no complaints about their participation in the Smart Saver HVAC program. The most-mentioned least favorite things about the program have to do with rebates not being large enough (6.8% or 11 out of 161) and rebates taking too long to arrive (5.0% or 8 out of 161).

Table 15. What Customers Like Least about the Smart Saver Program

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Nothing / No Complaints / Don't Know	75.3%	80.0%	77.6%
Not enough money / rebate too small	8.6%	5.0%	6.8%
Took too long to receive rebate	4.9%	10.0%	5.0%
Could have been better informed / more publicity	3.7%	1.3%	2.5%
Have not received rebate / don't recall if received	0.0%	2.5%	1.2%
Having to verify / clarify details for Duke Energy	2.5%	1.3%	1.9%
Disliked paperwork / too confusing / too much	1.2%	1.3%	1.2%
Problems with the contractor (listed below)	2.5%	0.0%	1.2%
Other items should be covered (listed below)	1.2%	1.3%	1.2%
Other complaints, listed below	4.9%	3.8%	4.3%

Percentages may total to more than 100% because participants could give multiple responses.

Two survey respondents mentioned that their least favorite part of the program was due to the contractor; these comments are listed below.

Rebate for heat pump (N=2)

- I disliked that I was misled by my contractor into believing that I would receive an additional \$200 rebate.*
- I disliked the fact that the contractor had problems filling out his part of the paperwork.*

Two survey respondents mentioned that their least favorite part of the program was that it did not cover other items; these comments listed below.

Rebate for heat pump (N=1)

- I did not like that my new furnace did not qualify for the rebate; it's a gas central air furnace.*

Rebate for central air conditioning (N=1)

- I didn't like that the program doesn't cover water heaters.*

Seven survey respondents mentioned "other" things about the program that they liked the least, which are listed below.

Rebate for heat pump (N=4)

- My time is very important to me, so I guess the time involved was something I did not like.*
- I disliked the inability to choose to receive the rebate as a bill credit.*
- I dislike the costs associated with receiving so many notifications about the program in my mail.*
- I disliked having to request that Duke send a replacement check.*

Rebate for central air conditioning (N=3)

- They try to sell you on a program when you've already made your decision.*
- I did not get a tax credit, but that is of no fault to Duke Energy or this program.*
- I think, just in general, rebates are kind of a hassle. But, this program was the most hassle-free rebate program I've done. The contractor took care of everything. I really can't complain.*

Improving Participation in Residential Smart \$aver

The top two suggestions from customers for increasing interest and participation in the program are to increase general advertising (36.0% or 58 out of 161) and including more information with monthly bills (28.0% or 45 out of 161). About one in four heat pump rebate recipients wants

more involvement from trade allies (24.7% or 20 out of 81), while fewer than one in ten air conditioner rebate recipients says the same (7.5% or 6 out of 80; this difference is significant at $p < .05$ using student's t-test). Customers who installed air conditioning are also more likely not to have any suggestions (38.8% or 31 out of 80) compared to those who installed heat pumps (8.6% or 7 out of 81; this difference is also significant at $p < .05$ using student's t-test).

There are many other significant differences between the two types of rebate recipient; all differences which are significant at $p < .10$ or better using student's t-test are marked in Table 16 below with bold italics.

Table 16. What Could Help Increase Interest and Participation in Smart Saver

	Heat Pump (N=81)	Central Air Conditioning (N=80)	All Surveyed Participants (N=161)
Increase general advertising	37.0%	35.0%	36.0%
Include more information with monthly bills	38.3%	17.5%	28.0%
Increase involvement with contractors / vendors	24.7%	7.5%	16.1%
Offer larger incentives	16.0%	6.3%	11.2%
Increase advertising in trade media	9.9%	3.8%	6.8%
Offer incentives on other items/include other items	7.4%	5.0%	6.2%
Promote with direct mail (not bill inserts)	8.6%	3.8%	6.2%
Emails promotions	7.4%	3.8%	5.6%
Include more community outreach and community events	3.7%	7.5%	5.6%
Promote on television	8.6%	2.5%	5.6%
Educate customers / more info to more people	2.5%	6.3%	4.3%
Better / more promotion through the Duke Energy website	3.7%	5.0%	4.3%
Increase awareness of savings / comparisons	4.9%	2.5%	3.7%
Have program staff call residential customers	4.9%	0.0%	2.5%
Newspaper / local magazines (print)	1.2%	2.5%	1.9%
Increase word-of-mouth	2.5%	1.3%	1.9%
Customer referrals / testimonials	2.5%	0.0%	1.2%
Make the process more streamlined for trade allies	2.5%	0.0%	1.2%
Make the process more streamlined for customers	1.2%	0.0%	0.6%
Other (listed below)	6.2%	6.3%	6.2%
Don't Know / Nothing	8.6%	38.8%	23.6%

Percentages may total to more than 100% because participants could give multiple responses.

Ten surveyed customers gave "other" suggestions for how to increase participation in the program; these are listed below.

Rebate for heat pump (N=5)

- *Advertise in school; get kids involved.*
- *Increase involvement with HVAC service technicians.*

- *Bring back the \$200 gas furnace incentive, or make it more of an incentive to the contractor to push the program.*
- *Make program information available at Lowes, Home Depot, etc.*
- *Give out more free stuff.*

Rebate for central air conditioning (N=5)

- *Target neighborhoods that are older. Our neighborhood is relatively new and no one pays attention to the program.*
- *Draw more attention to the webpage for the program through the My Home Energy Report.*
- *Use radio.*
- *Do a better job letting people know they can get free money from the program.*
- *I have no suggestions for the Smart Saver Program, but Duke could work at increasing participation in the Power Manager program, which would probably be more beneficial to decreased energy consumption.*

Energy Efficiency Actions and Upgrading Other Appliances

As Table 17 shows, 29.8% of respondents (48 out of 161) think Smart Saver has influenced them to become more energy efficient in other areas. Actions most commonly cited include using more efficient light bulbs (7.5% or 12 out of 161), upgrading appliances (6.2% or 10 out of 161), upgrading windows or doors (6.2% or 10 out of 161), and adding insulation (5.6% or 9 out of 161).

Although there is no significant difference by in the overall number of customers taking action by rebated unit, customers who received rebates for heat pumps were more likely to mention using more efficient bulbs (11.1% or 9 out of 81), while customers who received rebates for central air conditioning were more likely to make additional upgrades to their HVAC system (8.8% or 7 out of 80; both of these differences are significant at $p < .05$ using student's t-test).