### A. Description

During the first quarter 2012 Carolinas Collaborative meeting, Duke Energy will provide an update on the performance of its energy efficiency and demand side management programs for Vintage 2. Our product managers have prepared reports on each of our pilot/programs describing the offerings and details on pilot/program performance. This executive summary describes how Duke Energy Carolinas performed in regards to the demand side management performance in 2011. Pilot/program details are in the individual reports.

Pilot/program reports include:

Program	Category	Customer
Non-Residential Smart \$aver Prescriptive	EE	Non-residential
Non-Residential Smart \$aver Custom	EE	Non-residential
PowerShare	DSM	Non-residential
Smart Energy Now	EE	Non-residential
Residential Energy Assessments	EE	Residential
Residential Smart \$aver	EE	Residential
Low Income Energy Efficiency and Weatherization Assistance Program	EE	Residential
Energy Efficiency Education Programs for Schools	EE	Residential
Power Manager	DSM	Residential
Residential Retrofit	EE	Residential

#### **Audience**

All retail Duke Energy Carolinas customers who have not opted out.

#### B &C. Impacts, Participants and Expenses

The tables below include 2011 results for Vintage 2. The tables represent information January 2011 thru December 2011. The reason we have included nominal avoided cost rather than present value of the avoided costs is because our targets for save-a-watt purposes are based on nominal dollars. Please note that because North Carolina and South Carolina have slightly different avoided costs rates, the targets for each are different.

In our reports, we have not included the number of participants from the filing as well as the percentage of target for participants. The reason for this is because participants from individual measures can represent, for example, one CFL bulb in one measure or one six pack in another. Due to the multiple measures in programs, this can skew participation targets. To minimize confusion, this information was excluded from the report. Actual participants are included.

Through December 2011, the Company ended ahead of its avoided cost target for Vintage 2. This is primarily due to high impacts in the energy efficiency program (Residential Smart \$aver and Non-residential Smart \$aver). The program cost for this timeframe of Vintage 2 is higher than projected, which has been significantly driven by the increased participation in the Residential Smart \$aver program.

North	Carol	ina S	vstem	Summar	v <sup>1</sup>
			,		,

	Vintage 2	December 2011	% of
<u>\$ in millions</u>	As Filed	Achievement	Target
Nominal Avoided Cost	\$125.8	\$229.8	183%
Program Cost <sup>2</sup>	\$44.8	\$71.9	160%
MW from Vintage 2 <sup>3</sup>	510.1	610.1	120%
Incremental EE MW from Vintage 1 <sup>3</sup>	37.6	62.9	167%
Total MW Achieved <sup>4</sup>	547.6	673.0	123%
MWH	256,502.0	520,208.8	203%
Units		8,319,329	

#### Notes on Tables:

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V.
- 3) As filed MW are annual maximum peak. We track coincident peak for impacts.
- 4) Per the original SAW filings, Vintage 2 MW targets include MW achieved from Vintage 1 conservation programs.

Energy efficiency impacts have primarily been driven by lighting measures in both the residential and non-residential space. As a percentage of the target, the residential portfolio has exceeded expectations to date. This is a result of a higher take rate for CFLs offerings than originally projected.

The DSM portfolio is divided between the PowerShare (non-residential) and Power Manager (residential) programs. The Company is above target for avoided cost kW. Program costs are low in comparison to achieved avoided cost for North Carolina and South Carolina.

North Caro	lina Conser	vation Summary	Ť
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<u>\$ in millions</u>	Vintage 2 As Filed	Vintage 2 December 2011	% of Target
North Carolina Nominal Avoided Cost	\$91.6	\$189.7	207%
Program Cost <sup>2</sup>	\$29.0	\$42.2	145%
MW <sup>3</sup>	42.9	64.1	149%
мwн	256,502.0	520,208.8	203%
Units		8,125,276	

#### Notes on Table:

- 1) Numbers rounded.
- As filed program costs do not include M&V. Actual costs may include M&V.
- 3) As filed MW are annual maximum peak. We track coincident peak for impacts.

Note: Unlike the EE portfolio, where the kWh target is the same, the DSM portfolio has different kW targets for North Carolina and South Carolina. While the North Carolina EE docket was never closed, the original South Carolina EE docket was closed, included in the South Carolina rate case, and was adjusted up after the North Carolina filing. Both states have limitations on how much DSM can count towards the 4 year avoided cost, with South Carolina having a higher percentage due to the higher kW target.

North Carolina Demand	Response Summary <sup>1</sup>
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	Vintage 2	Vintage 2	% of
<u>\$ in millio</u>	ons As Filed	December 2011	Target
Nominal Avoided Cost	\$34.2	\$40.2	117%
Program Cost <sup>2</sup>	\$15.8	\$29.7	188%
MW <sup>3</sup>	467.2	546.1	117%
MWH	N/A	N/A	
Units		194,053	

### Notes on Tables:

- 1) Numbers rounded.
- As filed program costs do not include M&V. Actual costs may include M&V.
- MW capability derived by taking average over PowerShare and PowerManager contract period.

# D. Qualitative Analysis

# **Highlights**

# Energy Efficiency

To date, customer participation has been driven primarily by lighting programs and assessments. These measures provide customers with a relatively low cost efficiency upgrade, with minimal hassle, creating a positive initial energy efficiency experience. The Residential Smart \$aver program has seen greater than expected participation. This increase has been primarily driven by the overwhelming participation in the residential CFL offering. The increased participation is attributed to expanding the channels for customers to request CFLs. The new channels allow customers to request CFLs via the IVR/Web channel. These channels are lower in cost, provide an improved customer experience, and allow the Company to recognize participation in a timelier manner.

A second area to highlight is the development of our trade ally network. This network has enabled the Company to minimize acquisition costs by using trade allies as an extended sales force. Providing the trade ally network information on our incentive structure has enabled them to market the incentives to customers.

#### **Demand Side Management (DSM)**

In 2011, DSM programs ended above target for North Carolina.

#### Issues

There have been a number of issues that have negatively impacted Company specific energy efficiency programs. These programs include Low Income Energy Efficiency and Weatherization Assistance Program and Energy Efficiency Education Programs for Schools. Potential programs changes to improve program performance are addressed in the individual reports.

# **Potential Changes**

Several programs are reviewing their current processes, and are considering potential changes to increase customer adoption. Potential changes are discussed in individual program reports.

# E. Marketing Strategy

Located in individual reports.

# F. Evaluation, Measurement and Verification

Located in individual program reports.

# A. Description

The Non-Residential Smart \$aver® Prescriptive Program provides incentives to commercial and industrial consumers to install high efficiency equipment in applications involving new construction, retrofits and to replace failed equipment. Incentives are provided based on Duke Energy Carolina'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 Carolina's program provides financial incentives to help reduce the cost differential between the standard and high efficiency equipment, offer a quicker return on investment, save money on their utility bill that can be reinvested in their business, and foster a cleaner environment. In addition, this program provides market demand where the dealers and distributors, or market providers, will stock and provide these 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, motors, pumps, variable frequency drives, food services and process 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.

Duke Energy contracts with Wisconsin Energy Conservation Corporation (WECC) to administer the fulfillment responsibilities of the program and to provide training and technical support to our Trade Ally (TA) network. CustomerLink provides call center services to customers who call the program's toll free number which is specific to the Smart \$aver® Prescriptive Program.

#### **Audience**

All Duke Energy North Carolina and South Carolina non-residential electric customers, except those that chose to opt out of the program are eligible.

### **B & C. Impacts, Participants and Expenses**

	Vintage 2	% of	
<u>\$ in millions</u>	As Filed	December 2011	Target
North Carolina Nominal Avoided Cost	\$24.0	\$50.5	210%
Program Cost <sup>2</sup>	\$5.0	\$7.3	147%
MW <sup>3</sup>	9.4	14.6	154%
MWH	35,095.1	76,374.3	218%
Units		452,542	

#### Notes on Table:

- 1) Numbers rounded.
- As filed program costs do not include M&V. Actual costs may include M&V.
   Program costs include approximately \$0.6M of Non-Residential Energy Assessments.
- 3) As filed MW are annual maximum peak. We track coincident peak for impacts.

Consistent with other state programs, High Bays, LED Case Lighting, CFL bulbs and occupancy sensors have provided a significant portion of impacts and participation to date. Lighting installations have a shorter payback period than most other technologies, making it easier for customers to participate.

Subsequent to lighting, motors, pumps and variable frequency drives as well as HVAC equipment also to continue drive impacts.

Duke Energy attributes the higher than expected participation to a number of reasons:

- Trade ally outreach program— providing training and support to our trade allies who are often the first point of contact for unassigned business customers evaluating energy efficiency projects.
- Duke Energy's internal customer teams and targeted customer campaigns providing outreach, education, and support to customers.

To date, the company has been able to leverage support costs and its trade ally network across its regions to minimize marketing and administrative costs. However, the potential exist that acquisition costs may increase as the program continues to mature.

### D. Qualitative Analysis

### **Highlights**

Trade ally buy-in has proven to be the most effective way to promote the program to our business customers. At program rollout, Duke Energy and the WECC trade ally team took an aggressive approach to contacting trade allies associated with the technologies in and around Duke Energy's service territory. To date approximately 450 trade allies across both states, representing the different technologies are signed up as participating trade allies. Their company name and contact information appear on the trade ally search tool located on the Smart \$aver® website. This tool was designed to help customers, who are not aware of a local trade ally, find someone in their area who can serve their needs and is in the process of being revised to incorporate enhanced search criteria functionality. WECC manages the trade ally database where contact information and participation is reported.

Duke Energy continues to look for ways to engage the trade allies in promotion of the program, including the utilization of focus groups. A focus group of lighting and mechanical trade allies was conducted in December 2011. Discussion topics focused on technology developments, market trends, customer barriers, and application process improvements. Suggestions provided include online application submission and status verification, measure additions, increased incentives for small business customers, and trade ally bonus programs.

Duke Energy continues to perform outbound call campaigns to unassigned business customers to support program education efforts. Additionally, the Smart \$aver® Web page on the Duke Energy public website has been revised to enhance the user's experience and provide additional education material, including technology specific energy saving calculators, videos, white papers and customer success stories.

#### Issues

Participation in lighting, VFDs, and HVAC continue to be better than expected. However, there are other measures that provide savings to customers that continue to have little or no participation. Examples of these are Heat Pump Water Heaters, Food Services equipment and Compressed Air nozzles. Duke Energy continues to work with experienced engineering consultants and WECC as well as internal resources to develop strategies to understand the market potential and increase the awareness, where appropriate, of these measures going forward.

Another persistent challenge is the continued slow economic recovery which has lead to a reduction in customer payback thresholds and thus reduced elective participation in certain measures.

# **Potential Changes**

Standards continue to change and new more efficient technologies continue to emerge in the market. The Company expects to continue identifying and adding new measures to approved programs that provide incentives for a broader suite of energy efficient products.

# E. Marketing Strategy

Nonresidential customers are informed of programs via targeted marketing material and communications. Information about incentives is also distributed to trade allies, who in turn sell equipment and services to all sizes of nonresidential customers. Large business or assigned accounts are targeted primarily through assigned Duke Energy account managers. Accounts without assigned Duke Energy account managers receive information about the program through direct mail, email and other direct marketing efforts including outbound call campaigns.

The internal marketing channel is comprised of assigned Large Business Account Managers, Segment Managers, the Mass Market Business Strategy Team, and Local Government and Community Relations, who all identify potential opportunities as well as distribute program collateral and informational material to customers and Trade Allies. In addition, the Economic and Business Development groups also provide a channel to customers who are new to the service territory.

# **Marketing Materials**

North Carolina Website

http://www.duke-energy.com/north-carolina-business.asp

South Carolina Website

http://www.duke-energy.com/south-carolina-business.asp

### F. Evaluation, Measurement and Verification

TecMarket Works, Duke Energy's third party evaluator, finalized the process and impact report on June 16, 2011. This report included revisions to the report received February 6, 2011. It focused on participation in the program from 2009. The revisions were done to make the evaluation findings consistent with the most recent program planning estimates for High-Bay lighting fixtures.

The process evaluation included findings that the trade allies and commercial customers would like to have the prescriptive program application process available online. A second recommendation was made for an increase in collaborative marketing between Duke Energy and the trade allies to raise awareness of the program.

# **Gross Impacts Non-Residential Lighting**

Measure	Per Unit kWh Impact
High Bay 2L T-5 High Output	393
High Bay 3L T-5 High Output	590
High Bay 4L T-5 High Output	1224
High Bay 6L T-5 High Output	585
High Bay 8L T-5 High Output	1989
High Bay Fluorescent 3 Lamp (F32 Watt T8)	449
High Bay Fluorescent 4 Lamp (F32 Watt T8)	787
High Bay Fluorescent 6 Lamp (F32 Watt T8)	1268
High Bay Fluorescent 8 Lamp (F32 Watt T8)	853

# Non-Residential Smart \$aver® Custom Incentives

### A. Description

Duke Energy's Non-Residential Smart \$aver Custom 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 \$aver Custom Incentive program is designed to meet the needs of Duke Energy customers with electrical energy saving projects involving more complicated or alternative technologies, or those measures not covered by standard Prescriptive Smart \$aver Incentives. The intent of the Smart \$aver Program is to encourage the implementation of energy efficiency projects that would not otherwise be completed without Duke Energy's technical or financial assistance.

The Custom Incentive application is for projects that are not addressed by the applications for Smart \$aver Prescriptive Incentives. Unlike the Prescriptive Incentives, Custom Incentives require pre-approval prior to the project implementation. Proposed energy efficiency measures may be eligible for Custom Incentives if they clearly reduce electrical consumption and/or demand.

Application forms were recently revised to provide templates for popular types of projects, which ask for specific information and save time for the customer to fill out and for Duke Energy to review the projects. Currently there is the following application forms located on the Duke Energy website under the Smart \$aver Incentives (Business and Large Business tabs):

- Optional planning form that allows customers and their vendors to submit preliminary project information and receive feedback on potential eligibility and tips on filling out the application form.
- Custom Application, offered in word and pdf format with the designated worksheet in excel
  format. Customers can request the worksheet in another format if preferred. Customers or their
  vendors submit the forms with supporting documentation. Forms are designed for multiple
  projects and multiple locations. Custom Incentive Application (doc or pdf), are submitted with one
  or more of the following worksheets:
  - Lighting worksheet (excel)
  - Variable Speed Drive (VFD) worksheet (excel)
  - Compressed Air worksheet (excel)
  - Energy Management System (EMS) worksheet (excel)
  - General worksheet (excel), to be used for projects not addressed by or not easily submitted using one of the other worksheets

Duke Energy contracts with Wisconsin Energy Conservation Corporation (WECC) to perform the technical review of applications, fulfill payment requests and training and technical support to our Trade Ally (TA) network. CustomerLink provides call center services to customers who call the program's toll free number which is specific to the Smart \$aver Program. All other analysis is performed internally at Duke Energy.

#### **Audience**

All Duke Energy North Carolina and South Carolina non-residential electric customers except those that chose to opt out of the program.

# **B & C. Impacts, Participants and Expenses**

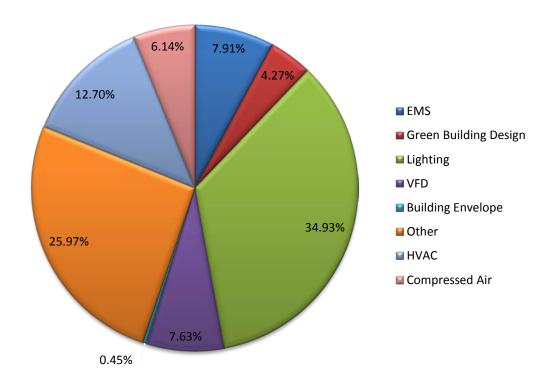
Smart Saver for Non-Residential Customers - Custom Rebate <sup>1</sup>					
	Vintage 2	Vintage 2	% of		
<u>\$ in millions</u>	As Filed	December 2011	Target		
North Carolina Nominal Avoided Cost	\$9.5	\$35.4	372%		
Program Cost <sup>2</sup>	\$5.0	\$6.1	121%		
MW <sup>3</sup>	2.1	6.6	310%		
MWH	13,305.6	55,927.7	420%		
Units		34,635			

### Notes on Table:

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V. Actual costs may include M&V. Program costs include \$0.5M of Non Residential Energy Assessments.
- 3) As filed MW are annual maximum peak. We track coincident peak for impacts.

During 2011, custom incentives were paid on a wide variety of projects are represented in the following pie chart:

# **2011** Percentage of Total Incentives by Technology



In 2012, additional technology categories will be tracked to improve reporting.

# Non-Residential Smart \$aver® Custom Incentives

### D. Qualitative Analysis

# **Highlights**

Interest and participation exceeded expectations in 2011. An average of 25 new applications per month was received in 2011, compared to nine per month in 2010. Total amount of custom incentives paid during the 2011 was more than three times the amount paid in 2010. Customers are consistently investing in efficiency projects that are not addressed by the prescriptive incentives. Customers would be able to plan better and Smart \$aver administrative costs would go down if more measures were added to the list of prescriptive incentives.

The efforts to educate the vendors who sell energy efficient equipment (trade allies) have been very successful. In many cases, the vendor will submit the paperwork for the Duke Energy customer, which eliminates a barrier for customers that do not have the resources to devote to the application.

#### Issues

The custom incentive application process is considered burdensome by some customers due to the technical review required for all projects that apply for a custom incentive. The technical review often requires customers (or their vendor) to quantify the projected energy savings from the proposed project. This can be a lengthy process that may require some level of engineering expertise. This requirement will continue, thus ensuring that incentives are being paid for cost-effective verifiable efficiency gains. Those technologies that seem to be a good fit for the Smart \$aver prescriptive program will be recommended for addition to the prescriptive application. The more that is offered through the prescriptive applications, the fewer burdens there are on the customer that prevents participation in the Smart \$aver program.

While the level of interest in custom incentives has increased, the custom incentive team has worked diligently to reduce average application review times. Additional resources were added to the team that performs the technical reviews and analysis, and administrative assistance was added. Customers receive an estimate of the total review time with the application receipt acknowledgement. Expedite requests are accommodated whenever feasible without adversely affecting other application reviews.

#### **Potential Changes**

Additional updates to custom lighting application forms are under review, with the goal to continue to improve customers' experience with custom incentives.

# E. Marketing Strategy

The marketing strategy for custom incentives is tied to the Smart \$aver prescriptive incentives. See the report on prescriptive incentives for a description. The strategy is to promote prescriptive incentives, which show pre-approved incentive amounts that get customers interested in a project and are designed for a high volume of applications. Then, if a customer's project does not fall under prescriptive incentives, the custom application is there to offer an alternative.

#### F. Evaluation Measurement and Verification

The Process Evaluation for the Smart \$aver® Custom program was finalized on August 12, 2011. This process evaluation was conducted through in-depth interviews with the Duke Energy program manager. Short interviews were also conducted with Duke Energy nonresidential customers and vendors.

# Non-Residential Smart \$aver® Custom Incentives

# Satisfaction with the Custom Program

The ratings from these interviews may be used as an indication of trends among the customer and vendors.

	Satisfaction with Incentive	Ease of Filling Out Application	Satisfaction with Time to Review Application	Satisfaction with Technical Expertise of Duke Energy Staff	Satisfaction with Program Information Provided	Overall Satisfaction with Smart \$aver <sup>®</sup> Custom
Mean Rating	7.00	6.63	7.37	7.88	7.73	7.70

Note: Ratings are on a scale of 0 to 10, with 10 being highest and 0 being lowest. Some ratings were not solicited from the respondent if they were not appropriate, for example if the customer did not fill out the application, or if no technical help was requested from Duke Energy.

- Customers are most satisfied with Technical Expertise of Duke Energy Staff and with the program information that was provided.
- Customers generally reported that the rebate was a major influence on their decision to do the project.
- Smaller customers find that the application is difficult if the applicant does not have a technical or engineering background.

The impact report is scheduled for the end of June, 2012.

# A. Description

PowerShare® is a demand response program offered to Commercial and Industrial customers. Currently made up of Mandatory (PS-M), Generator (PS-G), Voluntary (PS-V), and CallOption options, customers can choose from a variety of offers. Under PS-M, PS-G and CallOption, customers receive capacity credits for their willingness to shed load during times of peak system usage. These credits are received 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 often rather short (15-30 minutes). Failure to comply during an event will result in penalties.

#### **Audience**

PowerShare® is offered to nonresidential customers who have not opted out and are able to meet the load shedding requirements.

### **B & C. Impacts, Participants and Expenses**

PowerShare <sup>1</sup>				
		Vintage 2	Vintage 2	% of
٤	in millions	As Filed	December 2011	Target
Nominal Avoided Cost		\$16.3	\$23.5	144%
Program Cost <sup>2</sup>		\$9.4	\$15.2	162%
MW <sup>3</sup>		222.7	320.1	144%
MWH		N/A	N/A	
Units			148	

#### Notes on Tables:

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V. Actual costs may include M&V.

Program costs include approximately \$1.3M in Non Residential Energy Assessments.

 MW capability derived by taking average over specific PowerShare contract periods.

#### **Variance**

Customer participation is currently ahead of the plan, ending 2011 with over 350 MW of resource under contract, relative to the system goal of 319.7. Customer interest continues to be high as customers look for ways to manage their energy costs.

### D. Qualitative Analysis

#### **Program Highlights**

PS-Mandatory and PS-Generator have been well received by customers in North Carolina and South Carolina. Most IS and SG legacy customers in South Carolina and many in North Carolina transitioned to PS-M and PS-G, respectively. The legacy SG customers that did not switch are often small generators and don't qualify for PS-G because of the minimum curtailable load requirement.

#### **Program Issues**

In March 3, 2010, the U.S. Environmental Protection Agency (EPA) promulgated national emission standards for hazardous air pollutants (NESHAP) for existing stationary compression ignition reciprocating internal combustion engines (RICE). The EPA incorporated this new requirement into 40

# PowerShare®

CFR 63 Supart ZZZZ on May 3, 2010. Included in these rules were limitations on the use of "emergency generators" in demand response programs—maximum of 15 hours per year. For example, the current maximum hours for PS-M and PS-G are 100 hours annually. The EPA opened a period of additional comment upon this restriction in February 2011. It is anticipated that they will release any changes resulting from the comment period later this year. This compliance date for existing diesel-fired RICE engines is May 3, 2013. In December, 2011, the EPA reached a settlement with several interested parties where the rule would change to a maximum 60 hours per year. It is anticipated that this settlement will result in a change to the rules by December 2012.

Duke Energy continues to see strong participation in the industrial customer segment and actively looking for ways to improve participation by commercial customers. These businesses have a focus on making tenants and/or customers comfortable and the major electric end-uses are primarily HVAC and lighting. Therefore, it is difficult for many of these customers to curtail load through the programs up to 10-hour interruption period. In addition, these customers are less likely to have on-site personnel to manually intervene in systems and settings for curtailment events. On the other hand, we have some existing PowerShare® participants who indicate that they have the capability and willingness to curtail load on even shorter notification—5 minutes or less. In both of these cases, automated processes to connect the utility signal of a demand response event with the customer's equipment (end use or generator) would be necessary.

# **Potential Changes**

In response to the EPA restrictions on use of emergency generators for demand response, Duke Energy is considering offering a new PowerShare® option that would comply with the rules. Examples of changes that would be involved include maximum hours use would not exceed the federal limit and the capacity credit would be reduced based on having less access to the emergency demand response resource. Duke Energy will finalize those plans after the EPA releases their response to the February 2011 comment period referenced above.

Duke Energy is exploring Automated Demand Response technologies that have been deployed in other jurisdictions that could simplify the ways for commercial customers to curtail. By combining these effects across many facilities, like those of a national chain account, load-shedding strategies could be staggered across several stores in order to give a substantial amount of curtailed load without unduly impacting the end-use customer's operation. Program changes that allow for aggregating accounts for the purpose of demand response would be one of the areas that would need to be addressed. These same technologies would enable "fast-DR" strategies with customers who have the capability to curtail load in five minutes or less.

### E. Marketing Strategy

Marketing efforts for PowerShare® have focused on the relationship between the Duke Energy account managers and their assigned customers. As part of their normal contact with customers, the Account Managers have introduced PowerShare®, including any new options/offers while explaining the value proposition to the customer. These visits are supported with in-house, analytical spreadsheets, showing the specific incentives for each offer as applied to the customer's specific load profile as well as collateral to explain the details of all the PowerShare® offers.

#### F. Evaluation, Measurement and Verification

Tec Market Works (TMW), Duke's third party evaluator, provided the process report for the 2010 and 2011 PowerShare program in January, 2012. Several recommendations were included in this report based on interviews with program management and current customers. The recommendations included the suggestion to conduct a conjoint analysis to obtain data on what value customers place upon the different PowerShare program offerings. Another recommendation was to provide a one-page reference to remind customers of the requirements for participating in Voluntary and Call Option economic events as well as to provide customers with a summary sheet that highlights the program's key components and their company's specific commitment in their agreement.

# **PowerShare®**

The process report noted that Duke Energy is already aware that the calculation of capacity and incentives may be difficult for customers to understand, and results from participant surveys confirmed that there still is some confusion. Another recommendation was to consider easily-accessible tools for helping customers understand these calculations.

Customers lauded the excellent work of their account representatives in providing information about PowerShare, and for taking their time to walk them through the program if necessary. The Impact results for 2011 events will be available in the second quarter of 2012.

# A. Description

Smart Energy Now was approved as a pilot program by the North Carolina Utilities Commission in February 2011. The Pilot is designed to create energy and capacity reductions through behavioral modifications by leveraging the community's commitment to create an environmentally sustainable urban core. The pilot program will target both occupants and managers of commercial buildings by providing them with more detailed information on the building's energy usage, and allowing them to make comparisons between their building's energy performance and others within their community, and actionable recommendations to improve their energy performance.

#### **Audience**

This program will target customers occupying commercial office buildings in community settings. The pilot will target approximately 65 commercial office buildings (buildings with a minimum of 10,000 square feet) within Charlotte city center (as defined by the I-277 loop – see diagram to the right). Building owners, facility managers, and building occupants will all be part of the pilot, each playing an important role in achieving energy savings with the commercial office setting.



# **B & C. Impacts, Participants and Expenses**

Smart Energy Now <sup>12</sup>			
<u>\$ in millions</u>	Vintage 2 As Filed	Vintage 2 December 2011	% of Target
North Carolina Nominal Avoided Cost		\$1.8	
Program Cost		\$2.1	
MW		1.3	
MWH		7,152.5	
Units <sup>3</sup>		36	

# Notes on Table:

- 1) Numbers rounded.
- There is no as-filed comparison for Smart Energy Now because it is a new program and was not included in the original filing.
- 3) Units represent the number of customer accounts enrolled.

During the first year of the pilot the majority of expenses were focused on the development and implementation of program components (more detail provided in the next section on individual components). Expenses have been focused on the following areas: customer participation, display/content design, normalization of data, customer/community outreach strategy.

The program started recognizing participation in the fall with the "go live" public launch event in which Duke Energy unveiled the lobby displays and officially "turned on the displays" (more details provided in the next section). In total 32 of the approximate 63 (see highlights to equivalent sq ft) targeted buildings have the lobby displays installed and customers have access to their individual online interval energy data. The remaining lobby displays will be rolled out in early 2012.

### D. Qualitative Analysis

# **Highlights**

The pilot program had a lot of activity ongoing in 2011. The community support for the program has been overwhelming with 99 percent of the targeted qualifying sq ft signing up to participate in the program, the goal was 80 percent which we felt was the minimum participation to consider this a community program. Of the targeted square footage that has signed up to be a part of the program 32 of 63 buildings have all the necessary equipment and the interactive lobby display installed.

On October 28<sup>th</sup>, the program officially "went live" within the community and held a "turn on the displays" event in the heart of downtown Charlotte. The event drew a crowd of over 1,500 downtown workers and was highlighted with a key note speech by Duke Energy CEO Jim Rogers and appearances by other prominent civic leaders.

# Key aspects of the project:

# **Customer participation:**

The original goal of the project was to achieve enough participation from Duke Energy's customer base to reach 80 percent of the square footage in the target market. As of December 31, 2011, the Company has enrolled 99 percent of the target market. Enrolled is defined as signing up to participate. Delivering impacts is defined as when participants have lobby displays and/or access to online interval usage data.

#### Media architecture:

Forming the media architecture was one of the most challenging and critical tasks for 2011. The immaturity of the interactive digital signage market and the unique requirements of this project proved challenging to building an autonomous, secure and reliable architecture. In order to minimize the impact to buildings, the lobby display was display was designed to only need an outlet to plug into and the display uses Verizon Wireless' 4G network opposed to each building's network. To minimize the electricity usage of the display, the TV is energy star rated and is scheduled to be on from 6am to 6pm Monday-Friday.

#### **Kiosk/Content Design:**

The design of the lobby display had to be both equally aesthetic to existing lobby features with marble/glass/stainless steel/etc, but also durable, reliable, and secure. Here is the final design of the lobby display:

It should also be noted that a limited number of buildings (maximum of three) have relatively smaller lobby sizes in which the standard kiosk is not ideal. In early 2012, alternative lobby display will be evaluated to identify displays that better suite these smaller lobbies.



The content of the display is also a critical item in regards to the success of the project. The goal is to share near real-time energy usage information in a manner that the workers in the office buildings can relate to and then drive behavior. This information will also go onto a website (see website below) and possibly mobile phones.

Below is the initial home screen (note the displays are interactive and contains several pages):



A lot of thought and design has gone into the content of the display with the help of leading experts in behavioral science and commercial real estate. The current content design consists of the home page that features the live energy counter which presents usage in watts and then translated into terms that might resinate more with our audience. We currently translate usage into equivalent number of miles driven in a car and equivalent number of homes powered for one day. We intend to periodically update the translated units to other metrics that are relevant to consumers.

Content includes three other pages, "What's My Energy Footprint?", "Meet Your Uptown Energy Champions", and "About the Program". What's My Energy Footprint is intended to interact with users and help translate energy efficiency actions into terms and figure users can understand. This is currently an interactive energy quiz. This is just one of the examples of different engagement technique that we are testing and will continue to test and evaluate. The Energy Champions page is intended to give a personal touch to the program; we will highlight several uptown workers that are leading energy efforts within their own buildings. These champions will rotate and change every month, with the intent of keeping these fresh and relevant. We'd also love to spark some competition and recognition among building peers, saying "hey, did you see Susie on the kiosk!!" The last page is an about page that highlights the program description and gives a list of all the participating buildings.

In order to be successful in this pilot, we realize that the content must be relevant and fresh, requiring constant change within the limitation of the program. We intend to develop new content, update content, create enhancements, etc to keep uptown workers engaged in the kiosk and engaged in the program.

#### Normalization of data:

Duke Energy continues to work with Performance System Development (PSD) Consulting to develop the capabilities to normalize building EPA Portfolio Manager Characteristics and weather. All characteristics will be gathered from the customers using a secure online portal that is integrated with the EPA Portfolio Manager. This same portal will be used to show the customer their individual energy usage as well as track changes at the customer site for EM&V purposes.

To the right is a screen shot of the online portal that customers access to view their individual energy usage.



#### **Customer/Community Outreach:**

Community engagement will be a main focus for 2012. In 2011, several training and engagement practices were tested in order to formulate the outreach plan for 2012. The plan is more of a grassroots program utilizing the display/website to promote energy efficiency within companies and to connect on a more personal basis. This will consists of multiple training classes designed specifically for uptown workers, property managers, and facility engineers. A piloted specific training was offered to facility managers designed to help understand the level of interval energy data the pilot is enabling for individual customers and how to they can best use that. There will also be various follow-up tools leveraged to sustain interest and involvement from uptown workers.



Another key aspect of the community engagement will be the website. The website is an online version of the lobby display with some additional functionality. It is understandable that most uptown workers will not stop and interact with the lobby displays, but hopefully it gets their attention and is a reminder. Thus, the expectation is to draw attention toward the website for users to find out more information. The website allows users to register and login to record the actions taken (either daily or one-time actions) to save energy. Although there is a currently a leader board built in, Duke Energy is working add enhancements and functionality to make the website more relevant and increase visits from users. (A screen shot of the website is provided to the left)

#### Issues:

There are no major issues to report.

#### **Potential Changes:**

No significant changes are planned at this time.

#### E. Marketing Strategy

The marketing strategy for 2011 was almost fully geared toward the "turn on the displays" event held in October and the creation of the Smart Energy Now website. As a result of the marketing strategy, minimum additional marketing was required to gain customer support as existing relationships with customers and the small network of building owners. Additional marketing components are integrated into the community engagement plan. The focus in 2011 was to garner earned media and that will continue to be the focus moving forward.

#### F. Evaluation, Measurement and Verification

Survey instruments will be developed in the first quarter of 2012 and surveys are scheduled to begin in the second quarter of 2012.

The components or areas of research are as follows:

Component 1 – Owners: Energy impacts on participating buildings achieved by owners, operators and key stakeholders. Data collection will include telephone interviews, review of other Duke Energy program participation, and a non-participant sample if possible.

Component 2 – Occupants: Participating building occupant's energy impacts in their workplace. Data collection efforts include on-site intercept surveys, and analysis of web based answers to optional occupant qualification survey from program implementation. End use (plug load) logging equipment will also be installed where available.

Component 3 – Occupant Spillover: Participating building's occupants and operators impacts in their homes. These impacts may be too small to obtain a statistically representative sample, but on-site interviews will determine the feasibility.

Component 4 – Program Spillover: The impacts of the Smart Energy Now/Envision on the Charlotte area by conducting exploratory interviews with Envision key stakeholders to understand the wider efforts and activities of Smart Energy Now.

Component 5. Process evaluation of Smart Energy Now to assess program operations, customer perceptions and customer satisfaction of program.

# A. Description

The Residential Energy Assessments program includes two separate programs: 1) Personalized Energy Report (PER) ® and 2) Home Energy House Call.

The **Personalized Energy Report (PER)** ® **Program** provides targeted Duke Energy customers with a customized report aimed at helping them better manage their energy costs.

This report provides customers:

- Up to 12 months of energy usage history
- · Pie chart breakdown of where energy is being used
- Comparison of their energy usage to similar homes
- Customized energy tips to help save energy and money

The PER program utilizes two primary marketing channels to acquire customers. Customers receive a direct mail offer that allows them to complete a home energy survey either in hardcopy format or online where customers sign into their Online Services (OLS) bill pay and view environment. Customers who participate in the mailed offer are asked to complete and return the enclosed survey. Once the survey is processed, the customer's Personalized Energy Report is mailed to the customer. Online participants can view and print their report in a PDF format immediately after completing the online survey.

Duke Energy partners with several key vendors in support of the PER program: McKay, Aclara, and Niagara. McKay is responsible for printing the solicitation letters, surveys and final reports. Aclara combines customer usage data with survey responses, provided by Kindred, to produce the customized report. Niagara provides fulfillment of the six CFL bulb incentives.

Home Energy House Call (HEHC) is a free in-home assessment designed to help customers reduce energy usage and save money. 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 like CFLs, low flow shower head, low flow faucet aerators, outlet/switch gaskets, weather stripping and energy saving tips booklet.

Duke Energy partners with several key vendors in support of the HEHC program: Wisconsin Energy Conservation Corporation, Proto Type, CustomerLink and Niagara. Wisconsin Energy Conservation Corporation (WECC) administers the assessment component of the program. Additional key vendors include ProtoType for mailing services, CustomerLink for customer care support and scheduling (call center and back office), and Niagara for fulfillment of the Energy Efficiency Starter Kits.

#### **Audience**

PER targets residential customers that own a single family home with at least four months of billing history.

Home Energy House Call targets residential customers that own a single family residence with at least four months of billing history and have central air, electric heat or an electric water heater.

# **B &C. Impacts, Participants and Expenses**

	_	1
Residential	Energy	Assessments*

<u>\$ in millions</u>	Vintage 2 As Filed	Vintage 2 December 2011	% of Target
North Carolina Nominal Avoided Cost <sup>2</sup>	\$7.4	\$3.9	53%
Program Cost <sup>3</sup>	\$3.1	\$2.7	86%
MW⁴	4.0	1.6	39%
MWH	27,222.1	11,655.0	43%
Units		28,051	

#### Notes on Table:

- 1) Numbers rounded.
- New impacts per M&V extended measure lives by 1 year for Personalized Home Energy report and Online Audit.
- 3) As filed program costs do not include M&V. Actual costs may include M&V.
- 4) As filed MW are annual maximum peak. We track coincident peak for impacts.

#### D. Qualitative Analysis

# **Personalized Energy Report Program**

# **Highlights**

A direct mail campaign in the spring 2011 targeted about 90,000 North Carolina and 25,000 South Carolina single-family residential customers. Historically, this program has a customer response rate in excess of 15 percent for direct mail campaigns. The response rate was approximately 20 percent for spring 2011 direct mail campaign.

#### Issues

There are no current issues associated with this program.

#### **Potential Changes**

A thorough analysis of campaign responders will identify unique customer profiles that have a high propensity to participate in the PER program. This research will help better target future marketing campaigns, optimistically resulting in higher response rates and lower program costs.

### **Home Energy House Call Program**

# **Highlights**

Smaller and more frequent direct mail campaigns have reduced the wait time between enrollment and assessment completion. Mailings are zip code specific, so the energy specialists can reduce drive times and spend more time with customers. Duke Energy's Marketing Analytics team works closely with the HEHC team to develop a mailing strategy that provides broad coverage and targets the right customers.

CustomerLink's call script has been improved to educate and prepare customers about the Energy Efficiency Starter Kit measures and CFLs that can be installed by the energy specialist during the assessment. An automated reminder call is placed 48 hours prior to the appointment to ensure the customer will be present. During the call, customers are encouraged to identify potential areas to install energy efficiency measures from the EE Starter Kit. If the customer needs to cancel or reschedule the appointment, CustomerLink's phone number is provided during the reminder call. The purpose of the reminder call is to decrease the number of cancellations/no shows and allow for waitlist customers to be scheduled. We have seen a direct correlation with the update to the script and additional items being directly installed.

The Home Energy House Call program participating customers continue to provide an overall survey satisfaction score of 9 on a 10 point scale.

HEHC tested e-mail communications as another potential marketing channel. The test included customers who had elected to receive e-mail correspondence. The response rate was similar to the program's direct mail rates (1-3 percent), but the cost per acquisition was much lower. An example of the e-mail message is available in the appendix. The channel reached an untapped market that may not have responded to the direct mail marketing channel. HEHC plans to use e-mail as a marketing channel for this program.

Analysis has been completed to improve the overall customer experience for the 60-90 minute assessments. In addition, assessment questions and procedures have been reviewed to improve the process flow and clarity of energy saving opportunities. Cross selling opportunity of other energy efficiency programs will be incorporated into the assessment to allow customers an opportunity to take action in improving their home's efficiency.

#### Issues

The year to date 2011 marketing strategy focused on targeting customers in identified PRIZM segments with a high propensity to respond. The intent of the PRIZM based targeting was to improve response rates and to reduce acquisition costs. Unfortunately, the response rate from the mailings achieved didn't provide the expected participation lift to response rates was below expectations.

# **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 other measures for the Energy Efficiency Start Kit
- Analyzing seasonal trends
- Redesigning collateral new acquisition material (print and email), align materials with customer leave behinds and revise customer comment cards.
- Removing the geographic limitation and begin to mass promote utilizing our delivery channels and possibly adding new channels.

# E. Marketing Strategy

#### **Personalized Energy Report Program**

In 2011, the marketing of the program focused on improving new customer acquisition through the direct mail channel. Homeowners with 12 months of usage history were targeted in order to show a trend in energy use. Additional criteria included customers with above-average energy use who had few CFLs installed in the home.

Targeted customers received a cover letter explaining the benefits of the program and a survey to complete with a postage-paid return envelope. Within four to six weeks, participants received a Personalized Energy Report ® and a free six-pack of CFLs. A postcard was placed in the bulb packaging that encouraged customers to go online and check their eligibility to receive additional free bulbs. Examples of these marketing materials are available in the Appendix.

### **Home Energy House Call Program**

Program participation is primarily driven through targeted mailings to pre-qualified residential customers. To supplement this activity and keep acquisition costs low, e-mail marketing will be used when targeted customers have elected to receive offers electronically. Utilizing two different marketing channels will increase awareness levels of the program, thus potentially increasing program participation.

#### F. Evaluation Measurement and Verification

# **Personalized Energy Report Program**

On November 15, 2011, TecMarket Works (TMW), the third party evaluator, finalized the process and impact report for the Personalized Energy Report program. TMW conducted customer and management surveys in 2010 for this report.

The process evaluation indicated the CFLs provided as part of the program and the desire to reduce energy costs were motivating factors for the customers to participate in the program. In North Carolina, 15 percent of the program participants interviewed indicated they had more than six CFLs installed before participating in the program and 10 percent of South Carolina program participants interviewed indicated that they had more than six CFLs pre-installed.

One recommendation from the process evaluation was to review the areas of overlap between Duke Energy's residential energy report programs such as PER<sup>TM</sup>/OHEC (Online Home Energy Calculator) and HEHC (Home Energy House Call). The current number of slightly different residential energy report offerings risks confusing customers who may participate in one residential program and question whether they could or should participate in another program.

Since the customer has a choice of either the mail or online version (OHEC), TMW conducted a separate billing analysis for each version. For both analyses, billing data was obtained for all participants in the program between August, 2009 and March, 2011. The annual net savings for the program was 321kWh per participant.

# **Home Energy House Call Program**

The impact report for HEHC was completed June 13, 2011 for the participants who participated in the program in North Carolina (5,321 customers) and South Carolina (1,859 customers) between November of 2008 and July of 2010. A panel model specification was used that analyzed the monthly billed energy use across time and participants. The model included terms to control for the effect of weather on usage, as well as indicator variables to capture the effects of non-measureable factors that vary over time such as economic conditions and season loads. The net savings per participant per year are 639 kWh.

For the next process evaluation, TMW will interview program management and a sample of participants in the second quarter of 2012.

### G. Appendix

# **Personalized Energy Report - Cover Letter**

<<Date>> ««First Name»» ««Last Name»» ««Name of Business»» <<0000 Malling Address>> <<City>>, <<State>> <<Zip Code>> Dear <<First Name>> <<Last Name>>: Duke Energy wants to help you understand your energy usage, become more energy efficient, and save money, too. Our Personalized Energy Report (PER)<sup>®</sup> is a great place to start. It's free. And it's easy. Simply answer some questions about your home's appliances and your family's With your Personalized Energy Report (PER; \*\*, you can:
understand how your household uses energy
view your home's month-to-month energy usage and seasonal trends
compare your home's energy usage to similar households in your area
receive energy-saving tips for your home
learn about programs that may save you money Let the savings begin!

We've included a copy of the Home Energy Survey. Be sure to complete both sides and mail it to us in the enclosed envelope by June 30, 2011. We'll mail your Personalized Energy Report (PER)® back to you within four to six weeks of receiving your completed survey! But wait. There's more... Just for completing the survey, Duke Energy will send you a free six-pack of CFL builbs. That's right... Did you know that a single Compact Fluorescent Light (CFL) can last up to 10x longer than an incandescent bulb AND save \$30 in energy costs? Use them to replace your home's most frequently-used bulbs, and watch your savings grow to \$180 over the lifetime of the bulbs! Together, we can make a difference. Thank you for your interest in saving energy. We value your business, and we look forward to helping you take control of your monthly energy costs. K. Griffin Program Manager

# Personalized Energy Report Bulb - Packaging Postcard

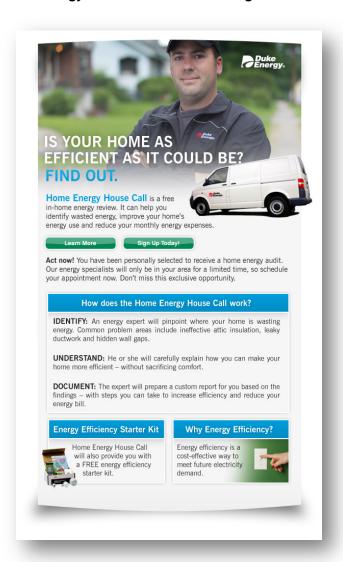


# Personalized Energy Report - Survey

F		<del></del>	
		WN ABOVE, PLEASE ANSWER THE FOLLOW USAGE. FILL IN THE CIRCLES COMPLETE	
ROPERTY DE	TAILS	How would you describe the size of the rooms in your home?	How old is your heating system?     0 - 4 years
Wheel have of homes	had done had a second	☐ Rove overage	5-9 years
<ul> <li>What type of home primary residence</li> </ul>		C Average	□ 10 −14 years
Detached single		Below average	☐ 15 - 19 years
Duplex/21am		9 C-01030366	20 years or greater
□ Townhouse	-,	8. Approximate size (heated area) of your home?	
	ulti – Family / (3 or more units)	Your answers to questions 6 & 7 above will	COOLING SYSTEM
□ Condominium		allow us to estimate the size of your home in square feet. Or, if you know the square footage	COOLING SISIEM
☐ Manufactured	home	of your home, you may choose it here and we	12 0
	area C	will use your input.	<ol> <li>Do you have a central cooling system? (If you use window or room air conditioners, you will</li> </ol>
Maw many levels o	does your home have.	CC < 500	note this in question 14)
	ement and unfinished attic?	C 500-999	No central cooling system
-1		C 1000-1499	Central air conditioning
□ 2		C 1500-1999	Heat Pump
D3		C 2000-2499	President Maria
		C 2500-2999	13. If you have any cooling system, how old is it?
to a bet a second	and the second second	C 3000-3499	□ 0 – 4 years
In what year was ;	your none pain.	C 3500-3999	
Before 1959		C 4000 or more	□ 10 – 14 years
— 1960 — 1979		C Don't know	☐ 15 – 19 years
— 1980 — 1989		The second of th	20 years or greater
— 1990—1997		MAIN HEATING SYSTEM	9000084808080
— 1998 – 2000	i .		14. Do you use room or window air conditioners?
— 2001—2007	<u> </u>	9. What is the fuel used in your primary	O %
2008		heating system?	⊖ No
		Electric	
Does your home h	ave an attic?	C Natural Cas	15. How many room or window A/Cs?
□ Yes		□ 0i	
□ No		- Propone	02
		Other (solar, wood, etc)	91
Does your home h	ave a basement?	No heat system	
Yes, heated			16. If you have a central heating and cooling
□ Yes, unheater	4	<ol> <li>Which of the following bests describes your</li> </ol>	system with air ducts, are any of these ducts
□ No		home's primary heating system?	located in the attic?
189		Electric Baseboard or ceiling cable	○ Ns
Eurladina hathana	ms and hallways, how many	Forced oir furnace	○ No
	no and narways, now many home? (inclus district outsine)	Standard feat pump	○ Net applicable
- I	□ 6	Ground source heat pump  Water boiler	
□ 2	01	Strum boiler	
O3	□ 8	─ Wood heating system	
-4	O 9	Heat pump with gas backup	
O 5	☐ More than 9	Heat pump with propane backup	
		Heat pump with all backup	- n
		No heat system	Duke

What is soon the second as this face had a		
. What is your thermostat setting for a typical	19. How many people live in your home?	26. a. Do you have a swimming pool?
heating day and a typical cooling day in the	<□ 1	C Yes
afternoon?	⇔ <b>2</b>	⇔ No
Heating	□ 3	
< 67 °	□ 4	b. Do you have a pool heater?
⇔ 67 – 70 °F	© 5	Yes
71 − 73 °F	© 6	⇔ No
74 – 77 °F	□ 7 or more	c. What type of fuel do you use to heat your
	7 or more	pool?
C Thermostat off/ No thermostat	20. Do you own or rent this home?	·
Cooling	Own	□ Electric
< <69°		Natural Gas
⇔ 69 – 72 °F	C Rent	⇔ Oil
⇔ 73 – 76 °F		C Propane
□ 77 – 78 °F	21. What fuel is used by your water heater?	Not applicable
○ > 78°F	© Electric	27. a. Do you have a hot tub?
Thermostat off/ No thermostat	Natural Gas	
Thermostat only No thermostat	C Propane	⇔ Yes
	C Other	⇔ No
	○ None	b. What type of fuel do you use to heat your
Do you have any of the following comfort issues in your home?		hot tub?
Issues III your morne:	22. What is the age of your water heater?	CO. Florida
a. Cold drafts in the winter	○ 0 – 4 years	© Electric
	⇒ 5 − 9 years	Natural Gas
C Yes		⇔ Oil
No	○ 15 – 19 years	Propane
b. Sweaty windows in the winter	20 years or greater	28. Would a two degree increase in your home's
C Yes	22 What have of first do you use for alathor	indoor temperature during summer weekday
○ No	23. What type of fuel do you use for clothes drying?	afternoons affect your family's comfort?
WW 110	□ Electric	○ Not at all
c. Cooling system will not keep the home	Natural Gas	A small impact
comfortable	C Other	A moderate impact
∀es	○ None	A large impact
⇔ No		
	24. What type of fuel do you use for your cook	<ol> <li>Are you planning to make any large purchases</li> </ol>
d. Heating system will not keep the home	top?	to improve the energy efficiency of your home within the next three years?
comfortable	C Electric	□ Yes
Yes	Natural Gas	○ No
	C Other	***************************************
	○ None	CO Not sure
e. Uneven temperatures between rooms		30. How many CFLs* do you have installed in your home?
CO Yes	25. What type of fuel do you use for your oven?	
⇔ No	C Electric	
	Natural Gas	
	C Other	
	○ None	
Please print your email address in the boxes below:		* 0 0 0 0 0 1 *
,		

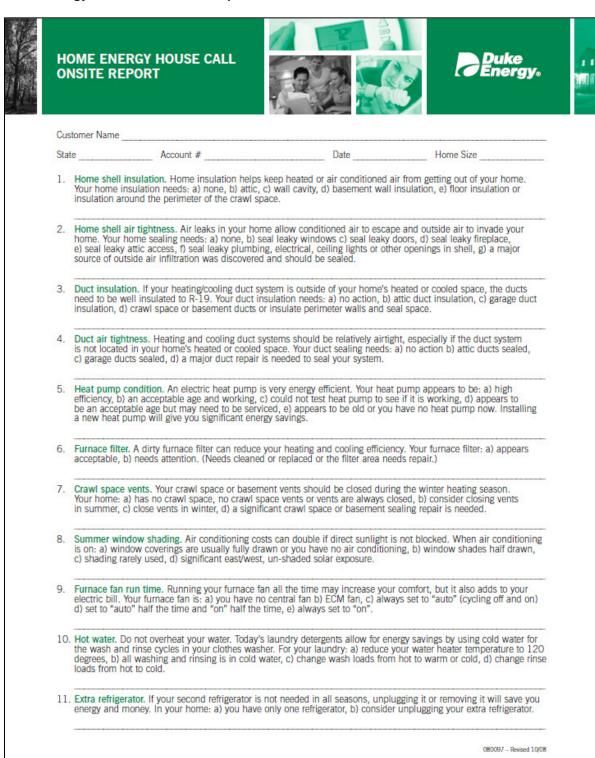
# Home Energy House Call E-mail Message



# **Home Energy House Call Direct Mail Message**



### **Home Energy House Call Onsite Report**



If you have questions about this report, please call 1-877-388-7676.

11

# **Residential Smart \$aver**

### A. Description

The Residential Smart \$aver® Energy Efficiency Program offers a variety of measures that allow customers to take action and reduce energy consumption.

# **Compact Florescent Lamps Measure**

The Compact Fluorescent Lamps (CFLs) measure 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 multiple channels to eligible customers. The on-demand ordering platform enables 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 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 requirements and frequently asked questions are also available.

#### 3) Online Services (OLS)

Customers enrolled in Duke Energy's Online Services are encouraged to order CFLs through the Duke Energy 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

# **Property Manager Channel**

The Property Manager channel allows Duke Energy to target multi-family apartment complexes to direct install CFLs. Honeywell is the vendor that manages distribution of CFLs via this channel and partners with North Carolina and South Carolina property managers to enroll multi-family properties.

# **Residential Smart \$aver**

This channel allows property managers to upgrade lighting with CFLs, reducing maintenance costs while improving tenant satisfaction by lowering energy bills. Each apartment may qualify for up to 12 CFLS per unit depending on the size.

Once enrolled, the Property Manager identifies the number of permanent lighting fixtures available. Duke Energy provides the CFLs, but the Property Manager pays for all shipping costs. The CFLs are installed in permanent fixtures during routine maintenance visits. The Property Manager provides tracking for the number of bulbs installed. Honeywell validates this information and provides a report for each individual unit on the property.

A Property Manager CFL promo and landing page were developed for multi-family property managers to self-serve and educate property manager. A contract, installation worksheet and CFL frequently asked question sheet are available for download. Marketing collateral including information on CFL savings and safety are available in English and Spanish to further support the program.

#### **Residential HVAC Measures**

Installation of a high-efficiency heat pump or air conditioner will result in a \$300 incentive. Wisconsin Energy Conservation Corporation (WECC) administers the program and establishes relationships with home builders and HVAC contractors ("trade allies") who interface directly with residential customers. These trade allies adhere to program requirements and submit the incentive application. Once the application is processed, WECC disburses the incentive funds. For replacement of an existing system, a Duke Energy 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.

CustomerLink handles calls from trade allies and customers about the program.

#### **Audience**

Duke Energy served homeowners currently residing or building a single family residence, condominium, duplex or mobile home are eligible for this program.

# **B &C. Impacts, Participants and Expenses**

Residential Smart Saver <sup>1</sup>			
<u>\$ in millions</u>	Vintage 2 As Filed	Vintage 2 December 2011	% of Target
North Carolina Nominal Avoided Cost	\$23.5	\$97.1	413%
Program Cost <sup>2</sup>	\$6.4	\$23.1	363%
MW <sup>3</sup>	11.8	39.7	336%
MWH	86,194.5	367,072.4	426%
Units		7,602,685	

# Notes on Table:

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V. Actual costs may include M&V.
- As filed MW are annual maximum peak. We track coincident peak for impacts.

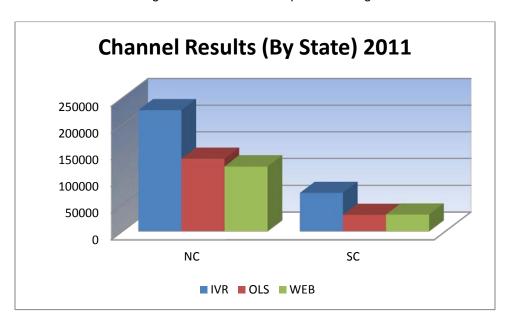
# D. Qualitative Analysis

#### CFL

# **Highlights**

Many customers have participated in the CFL program by ordering bulbs through the IVR, OLS and the website. Customers find this process simple and enjoy the convenience of bulbs being shipped directly to their home. Over 604,000 orders were placed between January and December. Participation is tracked to the customer level which allows Duke Energy to focus attention and resources on non-program participants.

Below is a chart showing the number of orders placed through the various channels:



#### Issues

Analyzing customer data and finding ways to effectively market to non-participating customers.

# **Potential Changes**

Innovative marketing campaigns and tactics will be utilized to improve awareness for hard-to-reach and late-adopter customers.

Duke Energy is considering expanding its lighting offer to include specialty bulbs, such as indoor recessed lights, candelabras, three-way bulbs and dimmable bulbs. Building on the insights and lessons learned from the current CFL promotion, Duke will determine best practices and go to market options to inform customers of the specialty bulb offer.

# **CFL** offering via Property Manager

#### **Highlights**

# **Residential Smart \$aver**

The Property Manager channel was implemented in February 2011 and has been well received in the Carolinas. So far, 275 North Carolina and 85 South Carolina Property Managers are in the process of completing application forms and/or installing bulbs. Total CFL bulbs installed in the Carolinas is approximately 229,000 and 177,000 CFL bulbs currently requested in the pipeline.

#### Issues

During the summer months, many properties do not have the resources available to prioritize bulb installation. Higher unit turnover, air conditioner maintenance and repair require the maintenance crew's attention. Several properties requested an extension from 60 to 90 days for installation. Some properties deferred participation until after the summer months have passed.

# **Potential Changes**

To minimize overages, Honeywell will begin subtracting ten percent of the bulbs ordered by Property Managers. Honeywell will also begin marketing to increase participation and educate apartment associations about the program. Marketing strategy will include phone solicitation, apartment association functions/networking, onsite meetings and presentations, email campaigns and trade shows.

#### **Residential HVAC**

# **Highlights**

Duke Energy and WECC have formed strong relationships with valuable trade allies across the Carolinas. These partnerships help ensure application fulfillment and prompt payment of incentives, as well as maintain top-of-mind awareness of the program and its benefits.

#### Issues

There are no current issues associated with this program.

# **Potential Changes**

Complementary measures are being considered as an enhancement to the existing program including attic insulation and air sealing, duct insulation and sealing, and HVAC tune-ups. Additional monetary incentives will be offered to customers who choose to participate. Duke Energy plans to file for regulatory of these measures first quarter 2012.

Duke Energy completed a RFP and vendor selection process for the Residential HVAC Program. The transition to a new program administer, GoodCents, will occur during the first quarter of 2012.

Electronic submission of the incentive application is also under consideration to expedite fulfillment and payment disbursement.

### E. Marketing Strategy

### **CFL**

The overall strategy of the program is to reach residential customers who have not adopted CFL bulbs. Duke Energy 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.

# **Residential Smart \$aver**

Direct mail responses provided over 37 percent of CFL orders placed in 2011. The individual response rates to the different campaigns have averaged almost 20 percent. Samples of the marketing collateral used for these campaigns are available in the appendix.

Honeywell markets to Carolina Property Managers through various channels including tradeshows, email and Apartment Association events. Additionally, Duke Energy maintains information on the My Duke website. Multi-family properties in the Carolinas see a promotional offer when they access the My Duke.

#### **Residential HVAC**

Promotion of the Smart \$aver® program is primarily targeted to HVAC contractors and new home builders. Trade allies are important to the program success because they interface with the customer during the HVAC decision making event, which does not occur often for most customers.

WECC is responsible for promotion of the program directly to potential trade allies including HVAC contractors and new home builders. Program information and a trade ally enrollment forms are available on the website to encourage participation. By increasing the participation of trade allies, it ensures more customers are aware of the program at time of purchase.

#### F. Evaluation, Measurement and Verification

#### **CFL**

Tec Market Works (TMW), the third party evaluator, finalized the process and impact evaluation for the Residential Smart \$aver® CFL Program in North Carolina and South Carolina on April 26, 2011. This report presented the findings of the program for Duke Energy from September 2009 through July 2010. Some of the findings from this report were:

- CFL coupons were the primary driver for participants to purchase CFLs, and more than 40
  percent of coupon redeemers indicated that they would have purchased zero CFLs if the Duke
  Energy coupon had not been available.
- While CFL coupons drove spillover to more CFL purchases, the coupons had only a small effect on simultaneous purchases of other energy efficiency technologies such as insulation and weather stripping.
- Of the CFLs redeemed with coupons, 90 percent in North Carolina and 84 percent in South Carolina were reported to be installed and operating in sockets at the time of the survey.

The net savings per bulb from this evaluation is 43.87 kWh (including spillover) for North Carolina and South Carolina combined.

### **HVAC**

Tec Market Works (TMW) finalized the process report for the 2009 Residential Smart \$aver program on November 21, 2011. This included participants from June 2009 through December 2009. The report indicated the overall participant satisfaction with the program is high at 8.9 on a one-to-ten scale. Surveyed program participants cited general advertising and increased incentives as the two most effective ways to increase participation in the Residential Smart \$aver® program.

The trade allies indicated in interviews for the report they would like to have the residential program application process available using a Web browser. This would make the program operate more smoothly for both Duke Energy staff and the Residential Smart \$aver® partner trade allies.

On January 31, 2012, TMW finalized the impact report for the program. The evaluation covers participants in the program from 2009 through 2010.TMW also prepared engineering estimates for program participants. The billing analysis included a near census of participants, as shown below:

Program	Impact Type	Participation Count for 2009-2010
Residential Smart Saver – Carolinas	Engineering	19,342
Residential Smart Saver - Carolinas	Billing	18,259

The net energy savings for air conditioners was 602 kWh and for heat pumps was 723 kWh.

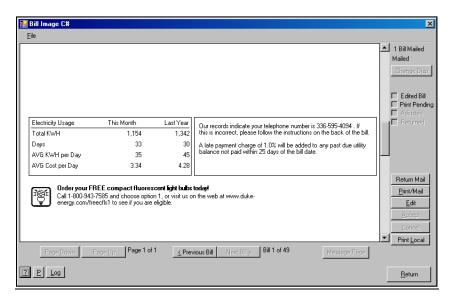
## G. Appendix

## CFL - Email Message





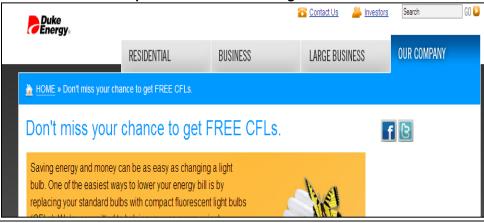
## CFL - Bill Message



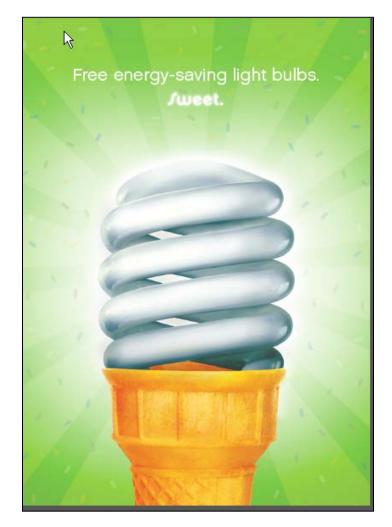
## CFL - Bill Insert

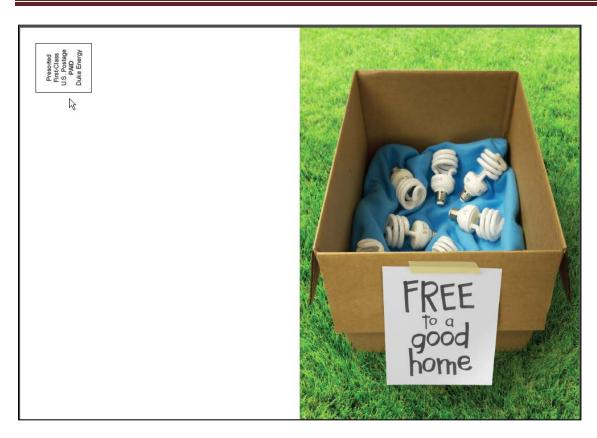


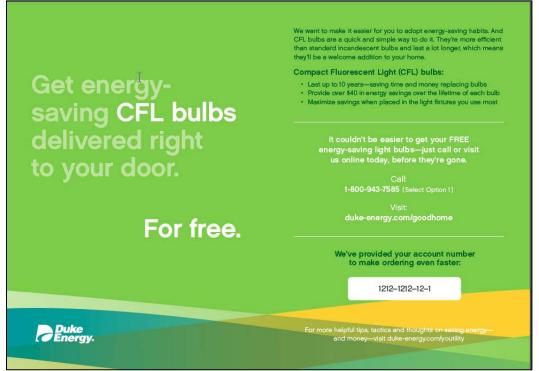
CFL - Social Media Options on Web Order Page



## **CFL – Direct Mail Campaign Targeting New Customers**

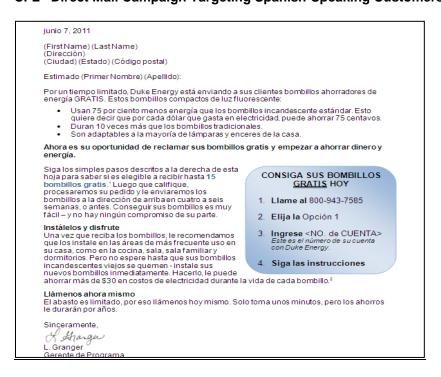








## CFL- Direct Mail Campaign Targeting Spanish-Speaking Customers



## CFL - Newspaper Advertisements



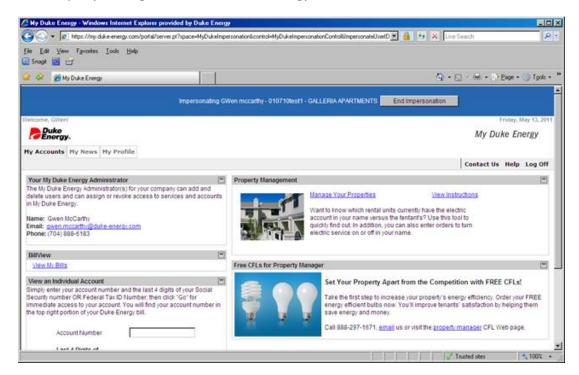
## **CFL Property Manager Channel – State Landing Page Promotion**



## CFL Property Manager Channel - Web Page



## CFL Property Manager Channel - Duke Energy Portal Promotion



## **Residential HVAC - Online Services Promotions**



#### SMART SAVER™ PROGRAM FOR EXISTING & NEW HOMES

Duke Energy encourages you to take advantage of our Smart Saver Program, which provides you an immediate rebate when you invest in a high efficiency heating or cooling system. And, with a high efficiency system, you'll experience savings on your home energy bills for years to come.

There are many new features in today's high efficiency heat pumps and air conditioners. This new technology will not only save you energy but it will also provide you greater comfort in your home.

By choosing a high efficiency system, you are helping to reduce our nation's need for energy, promote a clean environment and save valuable energy resources – now and in the future. You can find more information about Smart Saver, other energy efficiency programs, and ways to save energy and money at www.duke-energy.com/savings.

## **SMART SAVER REBATES\***

You may qualify for a rebate in your existing home when you replace your heating and/or cooling system. New homes may also qualify when a new high efficiency heating and cooling system is selected. Choose a qualifying high efficiency air conditioner or heat pump listed in the chart below.

Type of high efficiency heating or cooling system	Rebate amount to customer in an existing home	Rebate amount to builder of a new home**
New 14 SEER or greater air conditioner with ECM fan	\$200	\$300
New 14 SEER or greater heat pump with ECM fan. Heat Pump HSPF must be an 8.2 or greater.	\$200	\$300
New 11.5 EER or greater geo thermal heat pump with ECM Fan	\$200	\$300

- \* Rebates are paid for each qualifying system if more than one system is used in the home.
- \*\* For new homes, rebates are made to the builder unless the builder agrees that the customer will receive the rebate.

#### **SMART SAVER FREQUENTLY ASKED QUESTIONS**

### How do I qualify for the Smart Saver rebates?

Smart Saver rebates are available for Duke Energy customers who purchase a new high efficiency heat pump or air conditioner. Heat pumps and air conditioners must also be equipped with a high efficiency fan motor (ECM). The qualifying efficiencies are listed in the rebate table above.

## Why should I consider spending more on a high efficiency system?

Your new air conditioner or heat pump is an important investment for your home. You can expect this new system to last about 15 years and many systems last even longer. Investing in more efficient technology now will help keep your energy bills lower for years to come.

### What is a SEER or EER?

These are energy efficiency ratings to help consumers compare efficiency levels between all the available air conditioners and heat pumps. The higher the number, the less energy the system uses. The SEER or EER rating provided by your installer should be certified by the Air-Conditioning and Refrigeration Institute (ARI).

#### What is HSPF?

This is an energy efficiency rating for heat pumps. The higher the number, the less energy the system uses while heating your home.

### What is an ECM fan?

Most all heating and cooling systems use a fan to distribute the heating or air conditioning to all the rooms in your home. This is also referred to as the blower. The type of fan motor should be considered in the total energy required to heat and cool your home, as it can be a considerable expense on your energy bill. Today's new efficient fan motors are referred to as "ECM", which stands for Electronically Commutative Motor. Many people simply refer to these new motors as a "variable speed fan" but the ECM specification is required. In addition to saving you money, this new technology is quieter than traditional fan motors and will increase your family's comfort in many ways. Ask your heating contractor for more details.

## I do not have a heat pump now. Should I consider one?

Yes. When it's time to replace your central air conditioner, you can instead choose an add-on heat pump to significantly lower your monthly energy costs. In addition to providing energy efficient cooling in the summer, there is no heating technology that is more efficient than a heat pump during most winter temperatures. In a "dual-fuel" system, where an electric heat pump works in conjunction with a gas or oil furnace, the more efficient heat pump is used for 60% to 75% or more of your total heating load, and your furnace is used only on the coldest days.

## A. Description

The purpose of the low income program is to assist low income customers with energy efficiency measures in their home to reduce energy usage. There are three separate offerings currently in the program: weatherization, refrigerator replacement, and the agency assistance kit.

Weatherization and Equipment Replacement Assistance is available for up to 5,000 qualified customers on the Duke Energy Carolinas' system in existing, individually metered, owner-occupied single-family, all-electric residences, condominiums, and mobile homes.

- Funds are available for (i.) weatherization measures, and/or (ii.) refrigerator replacement with an Energy Star appliance, and/or (iii.) heating system replacement with a 14 or greater SEER heat pump. The measures eligible for funding will be determined by an energy audit of the residence.
- A home energy audit will be provided at no charge to the customer.
- Participants are not eligible for payments under any other Duke Energy Carolinas Energy Efficiency Programs for the same energy efficiency measure provided under this program.

The weatherization and refrigerator replacement programs were not implemented in 2011. Duke Energy planned to work with the state administers from North Carolina and South Carolina to provide a utility offered weatherization program to eligibility customers. However, due to the distribution of American Recovery and Reinvestment Act (ARRA) in 2009, both North Carolina and South Carolina's state weatherization program administrators requested Duke Energy delay the utility offered weatherization and refrigerator replacement programs. Duke Energy is currently working with contacts from the state administrator's office for North Carolina and South Carolinas to implement a utility offered program.

Duke Energy, in partnership with local assistance agencies, offered the Agency Assistance Kit (also known as low income CFL) program to low income customers. Program participants completed an energy efficiency survey and were mailed 12 free compact fluorescent light bulbs (CFLs). For their assistance in helping customers complete the survey, agencies received monetary compensation for each survey completed.

#### **Audience**

Weatherization and Refrigerator Replacement

Availability of this program will be coordinated through local agencies that administer state weatherization programs, and the agency must certify that the household income of the participant is between 150% and 200% of the federal poverty level.

Agency Assistance Kit

Duke Energy customers seeking assistance from participating agencies are eligible for this program.

## **B &C.** Impacts, Participants and Expenses

Low Income Energy Efficiency and Weat	herization Assistance <sup>*</sup>
---------------------------------------	------------------------------------

\$ in millions	Vintage 2 As Filed	Vintage 2 December 2011	% of Target
North Carolina Nominal Avoided Cost	\$9.3	\$0.1	0%
Program Cost <sup>2</sup>	\$3.9	\$0.0	0%
MW <sup>3</sup>	4.8	0.1	0%
MWH	35,890.5	488.5	0%
Units		915	

#### Notes on Table:

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V. Actual costs may include M&V.
- 3) As filed MW are annual maximum peak. We track coincident peak for impacts.

### D. Qualitative Analysis

## **Highlights**

The Smart \$aver® program offers CFLs to all residential customers in North Carolina and South Carolina through the automated Interactive Voice Response (IVR)/Web platform. The number of income qualified program participants in Smart \$aver® CFL program far exceeds the participation rate in the Agency Assistance Kit program results from past years.

The Smart \$aver® program reached a much larger audience of low income eligible customers. Local agencies now receive CFL postcards which provide information on the free CFL offer and instructions on how to place orders. An example of this postcard is available in the appendix.

### Issues

The Agency Assistance Kit program continues to see activity as Duke Energy receives returned mail and participation requests. The twelve-month financials featured above are reflective of delayed activity.

Both North Carolina and South Carolina received extensions to continue funding the state's weatherization program with ARRA funding. Duke Energy is currently in discussions with North Carolina and South Carolina state administrators to define a plan for a utility offered weatherization program that supports the state's weatherization program in the ARRA ramp down environment.

### **Potential Changes**

In addition, Duke Energy is evaluating potential program changes to the approved weatherization and refrigerator replacement programs. The changes would be implemented to align with the state offered weatherization program for both North Carolina and South Carolina.

## E. Marketing Strategy

Low income agencies receive a supply of post cards to distribute to Duke Energy customers. The post cards explain how to utilize the phone or web to have CFLs delivered directly to their home. A sample of the post card is updated in the appendix.

## F. Evaluation, Measurement and Verification

The final 2010 Process Evaluation Report for the Low Income CFL program was completed on September 20, 2010. The results of the report were shared with the Carolinas Collaborative in the 2011 second quarter collaborative meeting.

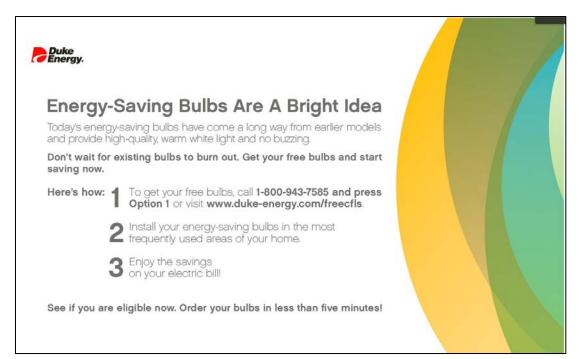
The Low Income Energy Efficiency and Weatherization Assistance Program evaluation plan is contingent on details and approval for a new program design.

### **Appendix**

## **CFL Agency Card (Front)**



## **CFL Agency Card (Back)**



# **Energy Efficiency Education Program**

## A. Description

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

The program educates students on energy efficiency in homes and schools through innovative lessons based upon science and math related curriculum. Education materials focus on concepts, such as renewable fuels and energy conservation and include interactive activities, such as online home audits that engage families in the learning experience. Students may also assist in such assignments as conducting energy assessments of their schools.

School principals are our 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, and classroom and family activity books.

The Energy Efficiency Education Program for Schools provides principals and teachers with innovative curriculum that educate students about energy, electricity, ways energy is wasted and how to use our resources wisely. Education materials focus on concepts such as energy, renewable fuels, and energy conservation through classroom and take home assignments, enhanced with a live 25 minute theatrical production performed by two professional actors. The current program is developed to educate students - kindergarten through eighth grade.

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 that contains specific energy efficiency measures to reduce home energy consumption.

Duke Energy partnered with a third party vendor, The National Theatre for Children to administer the program.

### **Audience**

Eligible participants include Duke Energy residential customers who reside in households with school-age children enrolled in public and private schools.

## **B &C.** Impacts, Participants and Expenses

Energy Efficiency Education Program for Schools <sup>1</sup>			
<u>\$ in millions</u>	Vintage 2 As Filed	Vintage 2 December 2011	% of Target
North Carolina Nominal Avoided Cost	\$17.7	\$0.7	4%
Program Cost <sup>2</sup>	\$5.7	\$0.8	14%
MW <sup>3</sup>	10.6	0.3	2%
MWH	58,794.2	1,411.9	2%
Units		6,383	

### Notes on Table:

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V. Actual costs may include M&V.
- 3) As filed MW are annual maximum peak. We track coincident peak for impacts.

# **Energy Efficiency Education Program**

## D. Qualitative Analysis

### **Highlights**

Duke Energy used a RFP to select a new program administrator for the Energy Efficiency Education Program. The National Theatre for Children (NTC) was selected to be the new program administer.

Key learnings from past program operations have been shared with NTC. An example of a key learning includes the ability to successful key decision makers. We have found in prior experience reaching the key decision maker has always been a challenge. With our new delivery approach, contacting the principal has been a success. The principal is the one responsible for setting up all school assemblies; therefore we have taken the ownership off of the teacher and provide supplemental material to assist their educational curriculum.

Duke Energy is helping bring arts and theatre back into the school while providing an important message about energy efficiency through a new innovative delivery channel for children. Enhancing the message with a live theatrical production has truly captivities the children's attention and reinforces the curriculum material provided to the teachers.

The NTC has an extremely sophisticated scheduling tool for mapping routes and can easily overcome scheduling conflicts facing schools. Therefore scheduling performances at the school's convenience verses when we may be in their area. The National Theatre for Children has a database filled with principal and teacher information and has the ability to overlay the Duke Energy territory to determine the highest propensity of Duke Energy customers.

Through the performance, we are encouraging students to go online, receive their Energy Efficiency Starter Kit and help save the world. With this message to students, we have seen an outstanding online response rate for survey completions. In our previous program with Scholastic, we saw a 2 percent online survey completion rate and with our new program, we have achieved a dramatic jump to 88 percent online survey completion rate.

### **Issues**

The National Theatre for Children will need to overcome several program challenges including:

- Strategic acquisition approach is required to minimize non-Duke student participation in the program.
- As awareness grows, schools outside of the Duke Energy service territory may begin to request performances.
- Students who participate in the performance need to complete their Energy Efficiency Survey before eligible to receive their Energy Efficiency Starter Kit.
- Reputation alone will not ensure program acceptance.
- Publicity and media coverage can always become a liability.

## **Potential Changes**

The National Theatre for Children has been the program administrator since October 2011. NTC is working closely with Duke Energy to enhance the program by

- Partnering with Duke Energy Account/District Managers to leverage existing relationships for additional acquisition channel.
- Leveraging give-a-aways to stir additional excitement in the schools/classrooms.
- Developing an alternative kit for those customers who have already participated in the Energy Efficiency Education Program.
- Enhancing all data processing methods.

# **Energy Efficiency Education Program**

As the program evolves in 2012, there will be additional enhancements to be made and improve the customer's experience when participating in the Energy Efficiency Education Program.

### E. Marketing Strategy

Scholastic utilized direct mail of curriculum kits to teachers, administrators and curriculum directors as the primary acquisition method for the program. The kit mailings were supported by in person meetings from Scholastic field representatives and electronic communication to encourage adoption.

The new program administrator, The National Theatre for Children (NTC), is responsible for all marketing campaigns and outreach. The National Theatre for Children utilizes direct mail and email for program acquisition sent directly to principals.

#### F. Evaluation Measurement and Verification

TecMarket Works, the third-party evaluator, finalized the process and impact report for the Energy Efficiency Education Program on November 17, 2011. This report provided an overview of the key findings of this program for the time period of June 2009 through April 2010. For this time period, Duke Energy provided 8,385 kits to program participants in North Carolina and South Carolina.

The evaluation plan included interviews with teachers, student families, program managers, and Scholastic program administrators for the process report. The evaluators experienced challenges when attempting to contact student families for interviews. Business Reply Cards (BRCs) were included with kits in order to capture impact data, but the evaluation indicated response rates could be improved. The evaluator pointed out that a 50 percent return rate of the BRCs should have easily been achieved and also recommended continuing to explore new program operations, enrollment, and marketing strategies. Per participant annual gross savings of 249.2 kWh and net savings of 205.2 kWh per participant were reported in the impact section of this report. The line loss factor is 8 percent; therefore approximately 221.4 kWh per participant is used to calculate Vintage 2 energy savings.

As a result of the change in the program administrator from Scholastic to the National Theater Company for this program, TecMarket Works modified future EM&V schedules. The first steps in the next EM&V review cycle will be for the independent evaluator to observe an NRC presentation in a school setting and to develop new survey instruments for the 2012 process evaluation.

# Power Manager®

## A. Description

Power Manager is a demand response program that cycles residential central air conditioning usage during summer peak demand conditions. Duke Energy installs a load cycling device to the outdoor unit of a qualifying air conditioner. This enables the customer's air conditioner to be cycled off and on when Duke Energy's supply position is at risk and the marginal cost to produce energy is high. In addition, Duke Energy could interrupt participating customers' air conditioning systems at any time the Company has capacity problems, including generation, transmission, or distribution capacity problems or reactive power problems.

Customers receive financial incentives for participating in this program. The customer receives an \$8 per month bill credit (\$32 annually) from July through October for their program participation.

The cycling of the customer's air-conditioning system has shown that there is no adverse impact on the operation of the air-conditioning system. The load control device has built-in safe guards to prevent the "short cycling" of the air-conditioning system. The air-conditioning system will always run the minimum amount of time required by the manufacturer. The cycling simply causes the air-conditioning system to run less, which is no different from what it does on milder days. Additionally, the indoor fan will continue to run and circulate air during the cycling event.

### **Audience**

This program is available to North Carolina and South Carolina residential customers residing in owner-occupied, single-family residences with a qualifying outdoor central air conditioning unit.

## **B & C. Impacts, Participants and Expenses**

PowerManager <sup>1</sup>				
		Vintage 2	Vintage 2	% of
	\$ in millions	As Filed	December 2011	Target
Nominal Avoided Cost		\$17.9	\$16.6	93%
Program Cost <sup>2</sup>		\$6.4	\$14.5	227%
MW <sup>3</sup>		244.4	226.0	92%
MWH		N/A	N/A	
Units			193,905	

## **Notes on Tables:**

- 1) Numbers rounded.
- 2) As filed program costs do not include M&V. Actual costs may include M&V.
- 3) MW capability derived by taking average over PowerManager contract period.

## D. Qualitative Analysis

Power Manager Events through September 30, 2011

There were seven Power Manager cycling events in 2011. During these events, Duke Energy cycled customers' air conditioning units off and on, helping shift demand and lower the afternoon peak.

- June 21
- July 11, 13, 20, 21, 29
- August 2

# Power Manager®

In addition to these cycling events, Duke Energy conducted two full shed tests in the summer of 2011. The first of these was a brief test conducted on May 31 in preparation of the summer season to ensure processes and systems were working as designed. A longer (approximately one hour) second test was conducted on August 25 to observe the program impacts. Unlike a Power Manager cycling event where Duke Energy cycles customers' air conditioning units off and on, a full shed event prevents participants' units from running throughout the duration of the event. A full-shed event would only occur during a system emergency when Duke Energy is experiencing capacity problems (these include generation, transmission or distribution).

## Ongoing Power Manager Device Improvements

Duke Energy, through its contract partner GoodCents, is conducting a multi-year project to replace outdated and non-functioning Power Manager devices to improve the reliability of the demand response events.

#### Power Manager \$35 Installation Fee

Currently the Power Manager tariffs in both North Carolina and South Carolina include a \$35 installation fee to be paid by customers enrolling in the program if wiring for the program is not present at their home. Duke Energy began actively marketing Power Manager in South Carolina in 2009, but response rates were low. A study was conducted to determine drivers of the low response rate why and what might be done to overcome barriers to enrollment. The largest barrier for customers was the \$35 installation fee.

Duke Energy plans to seek regulatory approval to remove the \$35 customer cost first quarter of 2012.

## E. Marketing Strategy

Following approval of the elimination of the \$35 installation fee, direct mail and email marketing is planned to acquire new customers for the program. Customers will be targeted geographically, which will allow for shorter customer wait time for installation as well as more efficient routes for the installers.

Duke Energy has traditionally mailed annual reminder/thank you postcards to Carolinas customers participating in the Power Manger program. In 2011, for the first time, the company included information on the impact that Power Manager had on energy demand during the 2010 event season.

Program information is also available to customers on the Power Manager Web site located at http://www.duke-energy.com/north-carolina/savings/power-manager.asp.

A new on-line enrollment form was developed and added to the Power Manager Web site in early December, 2011.

### F. Evaluation, Measurement and Verification

The 2010 and 2011 Process Evaluations for the Power Manager program were presented to the Carolinas Collaborative during the fourth quarter collaborative meeting. Included in this presentation were the results of the surveys conducted immediately after events in the summer of 2011, as well as the evaluations of the program for 2010 and 2011 based on surveys conducted with program management, associated vendors, program operations, and customers who participated in the program. In 2010, 70 percent of program participants rated satisfaction with the program a 9 or 10 on a 10-point scale. In 2011, more than 79 percent of program participants for North Carolina and South Carolina rated overall satisfaction a 9 or 10. The evaluators noted that one specific barrier to participation in the Carolinas is the initial sign-up fee of \$35. Also more than 40 percent of the surveyed respondents in both states were not aware of the control events because either they were not at home, or didn't notice any changes when the events took place.

Another finding from the surveys, conducted immediately after the events in 2011, was the age of the participant's air conditioner appears to be the most influential driver of perceived comfort change during a

# Power Manager®

Power Manager event . This finding suggests that targeting customers with air conditioners less than 12 years old may result in better comfort ratings as well as a higher retention rate for Power Manager participants. Given this, Duke Energy plans to utilize cross-selling opportunities with customers who have taken advantage of Duke Energy's Residential Smart \$aver program to install new air conditioning systems.

Impacts from the eight economic events in the summer of 2010 were also provided in the combined Process and Impact evaluation for 2010. The impacts varied per hour of each event based on the temperature and humidity levels of each particular hour.

## POWER MANAGER®



Duke Energy recently sent you a postcard that incorrectly contained information about the Power Manager program in our Midwest service territory. We are sorry for our mistake and any inconvenience that it may have caused.

We value you as a Power Manager customer. As you may know, this voluntary program pays you for allowing Duke Energy to cycle off your air conditioner as electricity demand approaches peak levels. Your participation helps keep electric rates lower throughout the Carolinas.

Last summer, customers in the Carolinas – like you – combined to reduce electricity demand by an average of 97 megawatts during each Power Manager cycling event. That's like reducing the demand for electricity by 32,000 homes during those peak periods!

And as a Power Manager participant, you receive an \$8 credit on your electricity bill each month from July through October – that's \$32 a year!

Thanks again for participating in the Power Manager program.

Questions – Visit duke-energy.com/powermanager or call 800-777-9898 for more information.

Event Hotline - Call 800-832-3169 to see if a cycling event is underway.

## Residential Retrofit

## A. Description

The purpose of the Residential Retrofit pilot is to aid residential customers in assessing their energy use, to provide recommendations for more efficient use of energy in their homes and encourage the installation of the energy efficiency improvement by offsetting a portion of the cost of implementing the recommendations. The pilot program was approved by the Public Service Commission of South Carolina on February 24, 2010. The pilot program was approved by the North Carolina Utilities Commission on January 25, 2011.

#### Audience

The pilot is available for up to 300 customers in North Carolina and 100 customers in South Carolina who live in owner-occupied single-family residences served on Duke Energy Carolina's residential rate schedule from Duke Energy Carolinas' retail distribution system.

## **B &C.** Impacts, Participants and Expenses

Residential Home Retrofit <sup>12</sup>			
	Vintage 2	Vintage 2	% of
<u>\$ in millions</u>	As Filed	December 2011	Target
North Carolina Nominal Avoided Cost		\$0.1	
Program Cost		\$0.1	
MW		0.0	
MWH		126.4	
Units		29	

### Notes on Table:

- 1) Numbers rounded.
- 2) Residential Home Retrofit is a new pilot so there is no as-filed comparison.

### D. Qualitative Analysis

### **South Carolina Pilot**

## Highlights

The South Carolina Residential Retrofit pilot launched in August 2010 as Energy Solutions @ Home (ES@H). ES@H was designed as a bundled energy efficiency solution for homeowners where trained energy professionals identify and install high impact energy home improvements. When homeowners make energy improvements to their homes, they receive on-going energy savings from lower heating and cooling costs because the leaky gaps and non-insulated areas of their homes are eliminated. It's an easy process for the customer because Duke Energy identifies the most effective energy-saving home improvements, provides a team of energy experts including skilled contractors and offers an incentive to lower the customer's installation cost.

Duke Energy's ES@H program focuses on the top four energy home improvements: air sealing, attic insulation, duct sealing and duct insulation. Offered individually or in combination, when these improvements are correctly installed, they substantially lower the amount of energy loss in a home and provide the greatest energy savings opportunities.

## Residential Retrofit

The process includes three steps and begins with a phone call.

### **Step 1: Phone Assessment**

Duke Energy helps customers determine if they are a good candidate for the offer via a short phone conversation with one of Duke's Energy Experts. The Expert uses energy audit software to conduct a high-level assessment of the customer's home considering the home's age, size, heating equipment, electric use and estimated insulation levels. The customer receives the following results during the call:

- installation recommendations
- anticipated energy savings and payback
- estimated installation cost
- estimated incentive amount

With the Expert's assistance, customers decide if these improvements are right for them. If so, the Expert then helps the customer take the next step by scheduling an in-home assessment.

### **Step 2: In-home Assessment**

A Building Performance Institute (BPI) certified assessor visits the home, listens to the customer's concerns and verifies or updates the information collected during the phone call. Using the same audit tool, the assessor produces a final project plan on site with the final recommendations, exact costs, custom incentive and out-of-pocket payment amount. In addition, the project plan includes the estimated energy savings and project payback period.

#### Step 3: Installation

Customers who agree to the project plan are contacted by their assigned program contractor to schedule the installation. When the work is complete, the Duke Energy incentive is deducted from the contractor's invoice as an immediate customer benefit.

### Issues

The pilot was based on the hypothesis that customers wanted a high touch turn-key offer and a custom incentive that paid a higher incentive to the more inefficient homes would drive demand from inefficient customers. A bidding process was used to select, two local building envelope contractors as the program installers to handle the energy efficiency installations. The program was marketed to homeowners in the Gaffney, Spartanburg and Greenville areas from August 2010 through March 2011. Over 5,800 customers were targeted in one of 5 different direct mail campaigns. Only four South Carolina pilot participants completed the full program requirements by installing the recommended improvements in their homes. The achieved pilot participation was much lower than expected. Due to low results, the pilot program was deemed non cost effective.

Customers were reluctant to commit to a program with a custom incentive because of the uncertainty of the amount of incentive they would receive. Customer wanted greater flexibility in selecting an installation contractor and the types of improvement installed. Many customers did not believe their homes were inefficient; therefore did not feel the offer applied to them. Only when a customer realizes they have a problem with the efficiency of their home are they interested in finding a solution.

### **North Carolina Pilot**

#### **Highlights**

The North Carolina pilot was approved in January 2011. Learnings from the South Carolina pilot have been applied to the North Carolina pilot. Duke Energy is conducting the Residential Retrofit pilot in conjunction with three North Carolina cities, Carrboro, Chapel Hill and Greensboro. The Carrboro program began June 1 with information on the City of Carrboro's website and contractor education. The Chapel Hill program began in July, 2011 and Greensboro program began in December 2011. Duke Energy provided sales training to contractors in each of the pilot locations on June 15th and 16th, 2011 to help the installers and contractors close more projects.

## Residential Retrofit

Duke Energy is supporting the programs by providing a financial incentive to encourage the installation specific high efficiency home improvements. Incentives offered by Duke Energy will be paid after verification that the qualifying improvements have been installed. The Duke Energy incentive will be in addition to the incentives provided by the City's Program. In North Carolina, the pilot is also testing the use of prescriptive incentives rather than custom to determine if foreknowledge of the incentive amount will increase customer adoption of the improvements.

As of February 29, 2012 40 customers have participated in the NC pilot program.

### E. Marketing Strategy

#### **South Carolina Pilot**

Marketing for the South Carolina pilot program began in August 2010 using direct mail to reach the targeted customers. The multiple campaign mailings were mailed based upon customers' geographic location. The mail drops allowed contractors and auditors to serve customers efficiently, with minimum travel between the homes of pilot participants. The pilot program tested several direct mail campaigns to generate interest in the program. The direct mail campaigns tested include a self-mailer, a postcard, a series of three postcards on the same theme, and a letter followed by a postcard coupled with outbound calls. In addition, Duke Energy also marketed the program via the website where program descriptions, video and frequently asked questions provided the customer with detailed information on the program. Marketing of the pilot ended in March 2011 due to low pilot participation.

### **North Carolina Pilot**

In North Carolina, Duke Energy is using the partner cities and their program contractors to promote the pilot program. Contractors have been provided information on the Duke Energy incentive and given sell sheets to use with customers. The Duke Energy offer is also promoted on the program websites.

### F. Evaluation Measurement and Verification

Tec Market Works finalized the process evaluation of the Energy Solutions @ Home Pilot in July 2011. This report presented the evaluation of the pilot in South Carolina from August 2010 through March of 2011.

The most-cited reason for non-participation in the ES@H program was the feeling the customer already had done enough in their home to save energy and participation in a program was not needed. In addition, participants at all levels of the program followed through with installing measures recommended in the phone and in-home audit.

Another finding was the primary motivating factor that drove participation decisions for the ES@H was the desire to reduce energy costs. But the primary barriers to participation in the in-home audit were a reluctance to pay the initial \$50 fee as well as a perception held by the phone audit participants that the phone audit had given them enough to do without an in-home audit. Forty percent of phone audit participants felt the phone audit was influential in their decision to NOT schedule an in-home audit.

The freeridership rate for the in-home audit and subsequent installations was estimated to be below 20 percent.

The program was not as successful as anticipated at having participants move through the participation process. Four out of 113 participants (less than10%) progressed through all the stages of the ES@H pilot, ending with the installation of one or more of the recommended measures.