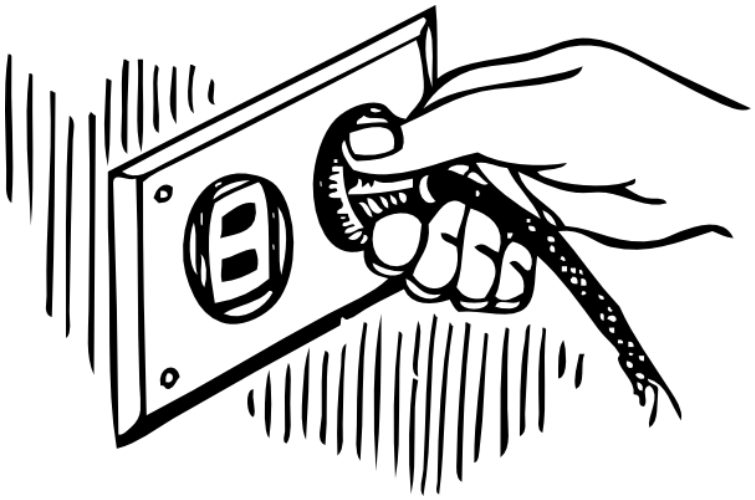
SOUTH CAROLINA ENERGY OFFICE
BUDGET AND CONTROL BOARD

Saving Energy, Saving Money: 2013

How South Carolina's Electric and Natural Gas Utilities Are Using Demand-Side Management to Help Customers Reduce Their Energy Bills



Published December 2014

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2013

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Published December 2014 by the South Carolina Energy Office,

a division of the South Carolina Budget and Control Board

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This material is based upon work supported by the Department of Energy under Award Number(s) DE-EE0003884.

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Executive Summary

Demand-side management (DSM) is a strategy that electric and natural gas utilities employ to decrease or defer demand for their energy services.

DSM directly benefits utilities by reducing their need for wholesale energy resources, pollution controls, and/or and expensive investments in generation, transmission, and distribution infrastructure. These cost savings may be passed onto utility customers in the form of lower utility rates. In addition, utility customers directly benefit from DSM through reductions in their monthly energy consumption and cost, as well as (in most cases) utility-provided incentive payments. Utilities are also encouraged by state legislative and regulatory incentives and mandates to increase their adoption of DSM.

South Carolina's two large investor-owned electric utilities (Duke Energy Progress/Duke Energy Carolinas and South Carolina Electric & Gas Company) and state-owned Santee Cooper all offered a broad range of DSM programs in 2013. South Carolina's twenty electric cooperatives have longstanding load control programs with several cooperatives recently offering low interest loans for home weatherization. Seven of South Carolina's municipal electric utilities also conducted DSM activity, including utilities serving cities as large as Rock Hill and as small as Abbeville. Together, these utilities provided 97% of the electricity purchased by South Carolina customers from electric utilities.

Both of South Carolina's investor-owned natural gas distribution utilities (Piedmont Natural Gas Company and South Carolina Electric & Gas Company) offered DSM programs in 2013. In addition, six of South Carolina's municipal natural gas utilities conducted DSM activities. Together, these utilities provided 91% of the natural gas purchased by South Carolina customers from natural gas utilities.

The tables on the following two pages summarize the DSM activities of all electric and natural gas utilities in South Carolina.

South Carolina Electric Utilities: Summary of Demand-Side Management (2013)

Electric Utility Name	Ownership	Energy Efficiency					Load Management						Public Information				
		New Building Efficiency Incentives	Existing Building Retrofit Incentives	On-Site Energy Assessments	Low-Income Efficiency and Weatherization Assistance	Equipment and Lighting Incentives	Load Control Incentives	Interruptible Service Incentives	Time-of-Use or Seasonal Rates	Standby Generation Incentives	Thermal Storage Incentives	Voltage Reduction	Web-Based Customer Tips and Tools	In-Home Real-Time Energy Monitoring	Direct-to-Customer Communication	Public Campaigns	School Programs & Resources
City of Abbeville	Municipal			✓									✓		✓		
Bamberg Board of Public Works	Municipal																
City of Bennettsville	Municipal																
City of Camden	Municipal											✓					
City of Clinton	Municipal											✓					
Town of Due West	Municipal																
Duke Energy Carolinas	Investor-Owned	✓	✓	✓	✓	✓	✓	✓	✓						✓		✓
Easley Combined Utility System	Municipal																
Electric Cooperatives (20 Co-ops)	Cooperative		✓*				✓										
Gaffney Board of Public Works	Municipal																
City of Georgetown	Municipal																
Greenwood CPW	Municipal																
Greer CPW	Municipal			✓					✓				✓				
Laurens CPW	Municipal						✓		✓								
Lockhart Power Company	Investor-Owned							✓									
McCormick CPW	Municipal																
City of Newberry	Municipal																
Orangeburg DPU	Municipal																
Duke Energy Progress	Investor-Owned	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
Town of Prosperity	Municipal																
City of Rock Hill	Municipal					✓	✓	✓				✓	✓			✓	
Santee Cooper	State-Owned	✓	✓	✓		✓			✓				✓		✓	✓	✓
Seneca Light & Water Plant	Municipal																
South Carolina Electric & Gas Co.	Investor-Owned	✓	✓	✓		✓		✓	✓	✓			✓	✓	✓	✓	
City of Union	Municipal											✓					
Westminster CPW	Municipal							✓									
Town of Winnsboro	Municipal																

Source: South Carolina Energy Office, annual survey of utilities
Note: This table does not include pilot projects.
*Available from select Co-ops

South Carolina Natural Gas Utilities: Summary of Demand-Side Management (2013)

Natural Gas Utility Name	Ownership	Energy Efficiency				Load Management	Public Information		
		New Building Efficiency Incentives	On-Site Energy Assessments	Low-Income Efficiency and Weatherization Assistance	Efficient Appliance or Equipment Inventives	Interruptible Service Incentives	Web-Based Customer Tools and Tips	Direct-to-Customer Communication	Public Campaigns
Bamberg Board of Public Works	Municipal								
City of Bennettsville	Municipal								
Chester County Natural Gas Authority	Municipal				✓				
Clinton-Newberry Natural Gas Authority	Municipal				✓				
Fort Hill Natural Gas Authority	Municipal				✓	✓			
Fountain Inn Natural Gas	Municipal								
Greenwood Commission of Public Works	Municipal								
Greer Commission of Public Works	Municipal		✓				✓		
Laurens Commission of Public Works	Municipal								
Orangeburg Department of Public Utilities	Municipal				✓	✓			
Piedmont Natural Gas Company	Investor-Owned			✓	✓			✓	
South Carolina Electric & Gas Company	Investor-Owned	✓	✓				✓	✓	✓
City of Union	Municipal								
Town of Winnsboro	Municipal								
York County Natural Gas Authority	Municipal						✓		

Source: South Carolina Energy Office, annual survey of utilities.
Note: This table does not include pilot projects.

Definition of Terms Used in this Report

Conservation—A reduction in energy consumption that corresponds with a reduction in service demand. Service demand can include buildings-sector end uses such as lighting, refrigeration, and heating; or industrial processes. Unlike energy efficiency, which is typically a technological measure, conservation is better associated with behavior. Examples of conservation include adjusting the thermostat to reduce the output of a heating unit and using occupancy sensors that turn off lights or appliances.[1]

Cubic foot (CF)—A unit of natural gas volume equal to that contained at standard temperature and pressure (60 degrees Fahrenheit and 14.73 pounds standard per square inch) in a cube whose edges are one foot long.[1] Retail sales of natural gas are often measured in cubic feet.

Demand response—(See "Load management")

Demand-side management (DSM)[2]—The use of energy efficiency, conservation, and load management programs/activities that help to decrease or defer consumption of energy services.

Energy efficiency—A reduction in the energy used by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall energy consumption, often without explicit consideration for the timing of program-induced savings. Such savings are generally achieved by substituting technologically more advanced equipment to produce the same level of end-use services (e.g. lighting, heating, motor drive) with less energy. Examples include high-efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating and air conditioning (HVAC) systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems.[1]

Gigawatt (GW)—One billion watts. (See "Watt")

Gigawatt-hour (GWh)—One billion watt-hours. (See "Watt-hour")

Kilowatt (kW)—One thousand watts. (See "Watt")

Kilowatt-hour (kWh)—One thousand watt-hours. (See "Watt-hour")

Load management—Utility demand management practices directed at reducing the maximum demand on a system and/or modifying the peak demand of one or more classes of service to better meet the utility system capability for a given hour, day, week, season, or year.[1]

Megawatt (MW)—One million watts. (See "Watt")

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[1] These definitions were adapted from the United States Energy Information Administration: http://www.eia.gov/tools/glossary/

[2] Some utilities use the term "demand-side management" to specifically describe programs that reduce peak demand, using the terms "energy efficiency" or "conservation" to specifically refer to programs which reduce overall energy use. For the purpose of this report, "demand-side management" refers to all programs that reduce consumption of utility-delivered electricity or natural gas, whether by reducing peak demand or reducing overall energy use.

Megawatt-hour (MWh)—One million watt-hours. (See “Watt-hour”)

Peak demand—The energy requirement of electric or natural gas customers at the point in the day, season, and/or year when need for energy is greatest. Utility generation, transmission, and distribution resources must be sufficient to accommodate peak demand requirements, making peak demand an important factor in utility resource planning

PURPA Qualifying Facilities (QF) are defined by the Public Utilities Regulatory Policies Act of 1978 (PURPA) as both 1) small power production facilities using renewable fuel sources, such as wind, solar, hydroelectric, biomass, waste, or geothermal; and 2) cogeneration facilities that produce both electricity and thermal energy in a way that is more efficient than the separate production of both forms of energy. Utility companies are required to purchase power from qualified facilities at a price equivalent to the avoided cost of additional generation.

Therm—A unit of heat equal to 100,000 BTU. Retail sales of natural gas are often measured in therms.

Thermal envelope—An enclosure—such as the walls, windows, doors, ceiling, and floor of a building—that holds warm or cool air.

Volt—A measure of electric potential or electromotive force. The voltage of utility-delivered electricity is sometimes reduced to manage capacity constraints during periods of peak demand.

Watt—A unit of electrical power equal to one ampere under a pressure of one volt. A watt is equal to 1/746 horse power. Watts are used in the measurement of peak demand for electricity.

Watt-hour—A unit of work or energy, defined as one watt of power expended for one hour. (For example, a 60-watt light bulb operated for one hour consumes 60 watt-hours of electricity.) Watt-hours are used in the measurement of electricity consumption.

Introduction

Demand-side management (DSM) is a strategy that electric and natural gas utilities employ to help to decrease or defer consumption of their energy services.

As fossil fuel combustion grows more expensive and the process of adding generation, transmission, and distribution capacity becomes increasingly difficult, some utilities are finding that reducing the growth in demand for their services is more cost-effective at the margin than continuing to expand their supply capacity. Utilities have also been encouraged by state legislative and regulatory incentives and mandates to increase their adoption of DSM.

DSM activities generally fall under the following categories:

- Energy efficiency, which reduces energy consumption without requiring customers to sacrifice the benefits received from energy (e.g.—installing building insulation, purchasing efficient appliances);
- Conservation, which reduces energy consumption by requiring customers to decrease their utilization of energy-consuming devices (e.g.—reducing thermostat temperature, turning off lights);
- Load management, which reduces customer demand for energy during periods of peak demand (such as daylight hours or summer months) when capacity is limited and the cost of energy provision is high; and
- Public information, which encourages customer participation in energy efficiency, conservation, and/or load management programs or behaviors through public campaigns, direct-to-customer communication, or increasing customer access to information about their consumption of energy services.

DSM directly benefits utilities in the following ways:

- Distribution-only utilities avoid having to purchase additional peaking and baseload energy resources from the wholesale energy market;
- Electricity-generating utilities avoid the cost of securing fuel and pollution abatement for peaking and baseload power plants, while deferring expensive investments in new power plants and their associated compliance costs;
- Both kinds of utilities avoid costly investments in new transmission and distribution infrastructure; and
- Utilities may in turn pass these savings on to consumers, resulting in lower utility bills.

In addition, DSM directly benefits utility customers in the following ways:

Many DSM programs provide financial incentives (such as rebates, bill credits, lower rates, or low-interest financing) to encourage customers to make choices that reduce their energy consumption overall or during periods of peak demand.

By encouraging customers to reduce their energy usage or to consume energy during times when energy services are less costly, DSM programs help customers to reduce their monthly utility bill.

The following report is intended to inform utility customers, consumer advocates, state and local policymakers, and energy market professionals about DSM activity undertaken by South Carolina's electric and natural gas utilities in 2013, the last year for which Energy Information Agency data are available. Descriptions of DSM programs are based entirely on utility responses to the South Carolina Energy Office's requests for information, as required by South Carolina Code of Laws Section 58-37-30 (see Appendix A). If you would like to learn more about a particular electric or natural gas utility's DSM programs, please contact the customer services department of that utility for additional information. Contact information for each utility is available on the SCEO website at http://energy.sc.gov/utilities.

Current and Projected Energy Savings from Demand-Side Management by Utilities Operating in South Carolina

- **South Carolina Electric Cooperatives'** demand response program was estimated to reduce peak electricity demand by 100 MW during winter months and 40 MW during summer months in 2013.

- **Duke Energy Carolina's** DSM activity was estimated to reduce electricity consumption 435,988 MWh in 2013 and reduce peak demand 891 MW in 2013. They are expected to reduce electricity consumption 7,788,479 MWh by 2029 and reduce peak electricity demand 2,312 MW by 2029.[3]

- **Duke Energy Progress's** DSM programs were estimated to reduce electricity consumption 260,522 MWh in 2013 and reduce peak demand by 453 MW in 2013. They are expected to reduce electricity consumption 4,687,381 MWh by 2029 and reduce peak electricity demand 1,675 MW by 2029.[3]

  Note: Duke Energy completed its corporate merger with Progress Energy on July 2, 2012. The merger, which was announced in early 2011, gained approval from both companies' shareholders and all necessary regulatory bodies. The companies are not yet operationally merged, so DSM measures were reported separately in 2013.

- **South Carolina Electric & Gas Company's** DSM activity was estimated to reduce electricity consumption 128,000 MWh in 2013 and reduce annual peak electricity demand 238 MW in 2013. They are expected to reduce electricity consumption 1,486,000 MWh in 2028 and reduce peak electricity demand 583 MW in 2028.[3]

- **Santee Cooper's** DSM activity was estimated to reduce electricity consumption 23,337 MWh in 2013.

Please see the sections below for more information about actual and projected energy savings and other benefits from utility DSM activity undertaken in 2013.

[3] These estimates were developed for annual Integrated Resource Plans submitted by investor-owned utilities to the Public Service Commission of South Carolina.

South Carolina Electric Utilities—Summary

Of the 46 electric utilities in South Carolina, 33 had ongoing DSM activity in 2013.[4]

In summary, their ongoing DSM activity consisted of:

Energy Efficiency and Conservation

- Four electric utilities provided financial incentives (such as payments or lower rates) to builders and/or building occupants to promote energy efficient new construction.
- Four electric utilities offered financial incentives (such as lower rates, bill credits, or financing) to building occupants to encourage energy efficiency improvements in existing structures.
- Six electric utilities offered on-site energy assessments to customers, providing trained personnel to evaluate facilities and suggest methods for improving energy efficiency.
- Two electric utilities implemented energy efficiency and weatherization programs targeting low-income customers, giving personalized assistance and financial support to enable these customers to make needed home improvements and lower their monthly electric bill.
- Five electric utilities offered financial incentives (such as lower rates, rebates, or low-interest financing) for the purchase and/or installation of energy efficient appliances, equipment, and/or lighting.

Load Management

- Twenty-four electric utilities (including the electric cooperatives) offered financial incentives (such as bill credits) to customers that opted to allow utilities to control their peak load by curtailing the operation of certain appliances or equipment (such as water heaters or HVAC systems) during periods of peak demand.
- Six electric utilities offered financial incentives (such as bill credits or lower rates) to customers that agreed to partially or completely halt electricity consumption, or allowed the utility to interrupt service, during periods of peak demand.
- Six electric utilities offered rates that reflected time-of-use, real-time, and/or seasonal capacity constraints and marginal generation costs during periods of peak demand.
- One electric utility provided incentives for customers to switch to on-site standby electricity generation during periods of peak demand.
- One electric utility offered lower rates for the operation of thermal storage equipment to enable shifting of thermal energy demand from peak to off-peak periods.
- Five electric utilities reduced the voltage of electricity delivered to customers during periods of peak demand.[5]

[4] Information provided on this summary page does not include pilot projects.

Public Information

- Six electric utilities maintained websites that offered energy efficiency and conservation tips and/or web-based systems for viewing and analyzing monthly electricity usage and cost.
- One electric utility offered in-home meters that displayed real-time information about customers' current and monthly electricity usage and cost.
- Five electric utilities communicated directly with customers through mailings and/or in-person assistance to publicize utility DSM programs and to offer energy efficiency and conservation tips and services.
- Four electric utilities conducted public outreach campaigns through advertising and/or presence at community events to publicize utility DSM programs and offer energy efficiency and conservation tips.
- Three electric utilities provided instructional programs and/or resources to K-12 schools to promote energy awareness.

[5] Voltage reduction is unique among the listed measures in that it is implemented across an entire service area; utility customers are usually not able to opt out of voltage reduction events. Voltage reduction might be undesirable to customers who require high voltage levels and disadvantageous to utilities attempting to maximize revenue by delivering (and charging for) the highest allowable voltage. However, voltage is typically reduced to levels that are acceptably safe and conducive to the operation of most appliances, and utilities typically implement voltage reduction only as a last resort when facing temporary capacity constraints. Conservative application of voltage reduction using advanced grid technologies is growing increasingly accepted as a cost-effective way to reduce customer energy bills and lessen the need for new peaking power generation and distribution capacity.

Electric utilities submitted narrative descriptions of their 2013 DSM activity in response to SCEO requests for information. *The following descriptions are presented as submitted by each utility or extracted from their Integrated Resource Plans (IRP); with the exception of minor edits to ensure relevance to the scope of this report and consistency with its format.*

Electric Cooperatives

Central Electric Power Cooperative is reporting on behalf of the 20 distribution electric cooperatives in South Carolina. Here is a summary of their DSM and energy efficiency programs for the year 2013.

DSM

There presently is an active demand response program whereby peak demands are reduced via electric water heater control, air conditioner control, and interrupted loads. Central and its member cooperatives are reducing peak loads approximately 100 MW during winter months and 40 MW during summer months. These are longstanding programs beginning 30 years ago. While many of the switches are controlled via a radio signal, South Carolina distribution cooperatives are increasingly turning to smart-grid applications, using power line carrier technology in order to communicate.

Energy Efficiency

Several electric power cooperatives offer retail members low-interest loans for home weatherization utilizing the South Carolina on-bill financing statute. Through 2013, over 400 homes have participated in the weatherization programs offered.

In addition to on-bill weatherization programs, some South Carolina distribution cooperatives offer on-bill heat pump replacement programs and special rates for members whose homes meet certain energy efficiency requirements.

Investor-Owned Electric Utilities

Duke Energy Carolinas

In 2013, Duke Energy Carolinas (DEC) filed its application for approval of Energy Efficiency (EE) and Demand Side Management (DSM) programs under North Carolina Docket No. E-7, Sub 1032 and South Carolina Docket 2013-298-E. This new portfolio was a replacement for the save-a-watt programs approved in 2009/2010. The Company received the final order for approval for these programs from the NCUC in October 2013 and from the PSCSC in December 2013.

DEC uses EE and DSM programs in its IRP to efficiently and cost-effectively alter customer demands and reduce the long-run supply costs for energy and peak demand. These programs can vary greatly in their dispatch characteristics, size and duration of load response, certainty of load response, and level and frequency of customer participation. In general, programs are offered in two primary categories: EE programs that reduce energy consumption and DSM programs that reduce peak demand (demand-side management or demand response programs and certain rate structure programs). Following are the EE and DSM programs currently available through DEC:

Residential Customer Programs

- Appliance Recycling Program
- Energy Assessments Program
- Energy Efficiency Education Program
- Energy Efficient Appliances and Devices
- Heating, Ventilation and Air Conditioning (HVAC) Energy Efficiency Program
- Multi-Family Energy Efficiency Program
- My Home Energy Report
- Income-Qualified Energy Efficiency and Weatherization Program
- Power Manager

Non-Residential Customer Programs

- Non-Residential Smart $aver® Energy Efficient Food Service Products Program
- Non-Residential Smart $aver® Energy Efficient HVAC Products Program
- Non-Residential Smart $aver® Energy Efficient IT Products Program
- Non-Residential Smart $aver ®Energy Efficient Lighting Products Program
- Non-Residential Smart $aver® Energy Efficient Process Equipment Products Program
- Non-Residential Smart $aver® Energy Efficient Pumps and Drives Products Program
    - Non-Residential Smart $aver® Custom Program
    - Non-Residential Smart $aver® Custom Energy Assessments Program
    - PowerShare®
    - PowerShare® CallOption

In addition, based on feedback from stakeholders, the Company has developed a pilot program for non-residential customers and has included it in this filing for Commission approval, so that it may determine the potential impacts and cost-effectiveness of this new program.

Pilot Program

- Energy Management and Information Services Program

Energy Efficiency Programs

These programs are typically non-dispatchable education or incentive programs. Energy and capacity savings are achieved by changing customer behavior or through the installation of more energy-efficient equipment or structures. All cumulative effects since the inception of these existing programs through the end of 2013 are already reflected in the customer load forecast and summarized below. The following provides more detail on DEC's existing EE programs:

Residential Programs

Appliance Recycling Program promotes the removal and responsible disposal of inefficient appliances. Currently, the program provides incentives to customers targeting the removal of inefficient operating refrigerators and freezers from Duke Energy Carolinas' residential customers. After collection of the appliances, approximately 95% of the material is recycled from the harvested appliances. This program is available to customers who own operating refrigerators and freezers used in individually-metered residences. The refrigerator or freezer must have a capacity of at least 10 cubic feet but not more than 30 cubic feet.

Appliance Recycling Program			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	11,277	18,654	3,461

Energy Assessments Program (formerly known as Home Energy House Call) assists residential customers in assessing their energy usage and provides recommendations for more efficient use of energy in their homes. The program also helps identify those customers who could benefit most by investing in new EE measures, undertaking more EE practices and participating in other Duke Energy Carolinas EE and DSM programs. This program includes Home Energy House Call, which provides eligible customers with a free in-home assessment designed to help customers reduce energy usage and save money. A Building Performance Institute-certified energy specialist completes a 60 to 90 minute walk-through assessment of the home and analyzes energy usage to identify energy saving opportunities. The specialist discusses behavioral and equipment modifications that can save energy and money with the customer and provides a customized report to the customer that identifies specific actions the customer can take to increase their home efficiency. Participating customers will also receive an Energy Efficiency Starter Kit with a variety of measures that can be directly installed by the energy specialist.

Home Energy House Call			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	29,050	28,822	5,339

Two previously offered Residential Energy Assessment measures are no longer offered in the new portfolio effective January 1, 2014. The historical performance of these measures through December 31, 2013 is included below.

Personalized Energy Report			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	86,333	24,502	2,790

Online Home Energy Comparison Report			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	12,902	3,547	387

Energy Efficiency Education Program is designed to educate students in grades K-12 about energy and the impact they can have by becoming more energy efficient and using energy more wisely. In conjunction with teachers and administrators, the Company will provide educational materials and curriculum for targeted schools and grades that meet grade-appropriate state education standards. The curriculum and engagement method may vary over time to adjust to market conditions, but currently utilizes theatre to deliver the program into the school. Enhancing the message with a live theatrical production truly captures the children's attention and reinforces the classroom and take-home assignments. Students learn about EE measures in the Energy Efficiency Starter Kit and then implement these energy saving measures in their homes. Students are sharing what they have learned with their parents and helping their entire households learn how to save more energy.

Energy Efficiency Education Program			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	81,034	21,299	3,951

Energy Efficient Appliances and Devices Program (formerly part of Residential Smart $aver® program) provides incentives to residential customers for installing energy efficient

appliances and devices to drive reductions in energy usage. The program includes the following measures:

- Energy Efficient Pool Equipment: This measure encourages the purchase and installation of energy efficient equipment and controls. Initially, the measure will focus on variable speed pumps, but the pool equipment offerings may evolve with the marketplace to include additional equipment options and control devices that reduce energy consumption and/or demand.

- Energy Efficient Lighting: This measure encourages the installation of energy efficient lighting products and controls. The product examples may include, but are not limited to the following: standard CFLs, specialty CFLs, A lamp LEDs, specialty LEDs, CFL fixtures, LED fixtures, 2X incandescent, LED holiday lighting, motion sensors, photo cells, timers, dimmers and daylight sensors.

- Energy Efficient Water Heating and Usage: This measure encourages the adoption of heat pump water heaters, insulation, temperature cards and low flow devices.

- Other Energy Efficiency Products and Services: Other cost-effective measures may be added to in-home installations, purchases, enrollments and events. Examples of additional measures may include, without limitation, outlet gaskets, switch gaskets, weather stripping, filter whistles, fireplace damper seals, caulking, smart strips and energy education tools/materials.

Residential Smart $aver® Program – Residential CFLs			
Cumulative as of:	**Participants (CFLs)**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	24,002,460	1,010,996	106,860

Residential Smart $aver® Program – Specialty Lighting			
Cumulative as of:	**Participants (bulbs)**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	117,057	5,376	525

Heating, Ventilation, and Air Conditioning (HVAC) Energy Efficiency Program (formerly part of Residential Smart $aver® program) provides residential customers with opportunities to lower their home's electric use through maintenance and improvements to their central HVAC system(s) as well as the structure of their home's building envelope and duct system(s). This program reaches Duke Energy Carolinas customers during the decision-making process for measures included in the program. Each measure offered through the program will have a prescribed incentive associated with successful completion by an approved contractor. The prescriptive and a-la-carte design of the program allows customers to implement individual, high

priority measures in their homes without having to commit to multiple measures and higher price tags. The measures eligible for incentives through the program are:

- Central Air Conditioner
- Heat Pump
- Attic Insulation and Air Sealing
- Duct Sealing
- Duct Insulation
- Central Air Conditioner Tune Up
- Heat Pump Tune Up

Residential Smart $aver® Program -- HVAC			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	47,021	42,098	8,907

Residential Smart $aver® Program -- Tune and Seal			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	451	263	73

Multi-Family Energy Efficiency Program provides energy efficient technologies to be installed in multi-family dwellings, which include, but are not limited to, the following:

- Energy Efficient Lighting
- Energy Efficient Water Heating Measures
- Other cost-effective measures may be added to in-home installations, purchases, enrollments and events. Examples of additional measures may include, without limitation, outlet gaskets, switch gaskets, weather stripping, filter whistles, fireplace damper seals, caulking, smart strips and energy education tools/materials.

Residential Smart $aver® Program – Property Manager CFLs			
Cumulative as of:	**Participants (CFLs)**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	909,898	39,213	4,039

My Home Energy Report Program provides residential customers with a comparative usage report up to twelve times a year that engages and motivates customers by comparing energy use

to similar residences in the same geographical area based upon the age, size and heating source of the home. The report also empowers customers to become more efficient by providing them with specific energy saving recommendations to improve the efficiency of their homes. The actionable energy savings tips, as well as measure-specific coupons, rebates or other Company program offers that may be included in a customer's report are based on that specific customer's energy profile.

My Home Energy Report Program			
Cumulative as of:	**Participants**	**Capability (MWh)**	**Summer Capability (kW)**
December 31, 2013	722,069	143,256	30,310

Note: The capability for the MyHER Program shown above is lower than what was reported in the 2012 IRP, even though the participation has increased, due to the application of M&V.

Income-Qualified Energy Efficiency and Weatherization Program consists of three distinct components designed to provide EE to different segments of its low income customers:

- The Residential Neighborhood Program ("RNP") is available only to individually-metered residences served by Duke Energy Carolinas in neighborhoods selected by the Company, which are considered low-income based on third party and census data, which includes income level and household size. Neighborhoods targeted for participation in this program will typically have approximately 50% or more of the households with income up to 200% of the poverty level established by the U.S. Government. This approach allows the Company to reach a larger audience of low income customers than traditional government agency flow-through methods. The program provides customers with the direct installation of measures into the home to increase the EE and comfort level of the home. Additionally, customers receive EE education to encourage behavioral changes for managing energy usage and costs.

  The Company recognizes the existence of customers whose EE needs surpass the standard low cost measure offerings provided through RNP. In order to accommodate customers needing this more substantial assistance, the Company will also offer the following two programs that piggy-back on the existing government-funded North Carolina Weatherization Assistance Program when feasible. Collaborating with these programs will result in a reduction of overhead and administration costs.

- The Weatherization and Equipment Replacement Program ("WERP") offers weatherization services and equipment replacement of electric heating systems. Weatherization services are available to individually-metered, single-family

residences served by Duke Energy Carolinas on a residential rate schedule. Income eligibility requirements for WERP will mirror the income eligibility standards for the North Carolina Weatherization Assistance Program.

The Refrigerator Replacement Program ("RRP") includes, but is not limited to, replacement of inefficient operable refrigerators in low income households. The program will be available to homeowners, renters, and landlords with income qualified tenants that own a qualified appliance. Income eligibility for RRP will mirror the income eligibility standards for the North Carolina Weatherization Assistance Program.

Income Qualified Energy Efficiency and Weatherization Program			
Cumulative as of:	**Participants**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	16,963	10,284	1,309

Non-Residential

Non-Residential Smart $aver® Energy Efficient Food Service Products Program provides prescriptive incentive payments to non-residential customers to encourage and partially offset the cost of the installation of new high efficiency food service equipment in new and existing nonresidential establishments and repairs to maintain or enhance efficiency levels in currently installed equipment. Measures include, but are not limited to, commercial refrigerators and freezers, steam cookers, pre-rinse sprayers, vending machine controllers, and anti-sweat heater controls.

Non-Residential Smart $aver® Energy Efficient HVAC Products Program provides prescriptive incentive payments to non-residential customers to encourage and partially offset the cost of the installation of new high efficient HVAC equipment in new and existing non-residential establishments and efficiency-directed repairs to maintain or enhance efficiency levels in currently installed equipment. Measures include, but are not limited to, chillers, unitary and rooftop air conditioners, programmable thermostats, and guest room energy management systems.

Non-Residential Smart $aver® Energy Efficient IT (Information Technologies) Products Program provides prescriptive incentive payments to non-residential customers to encourage and partially offset the cost of the installation of high efficiency new IT equipment in new and existing non-residential establishments and efficiency-directed repairs to maintain or enhance efficiency levels in currently-installed equipment. Measures include, but are not limited to, Energy Star-rated desktop computers and servers, PC power management from network, server virtualization, variable frequency drives ("VFD") for computer room air conditioners and VFD for chilled water pumps.

Non-Residential Smart $aver® Energy Efficient Lighting Products Program provides prescriptive incentive payments to non-residential customers to encourage and partially offset the cost of the installation of new high efficiency lighting equipment in new and existing non-

residential establishments and the efficiency-directed repairs to maintain or enhance efficiency levels in currently installed equipment. Measures include, but are not limited to, interior and exterior LED lamps and fixtures, reduced wattage and high performance T8 systems, T8 and T5 high bay fixtures, and occupancy sensors.

Non-Residential Smart $aver® Energy Efficient Process Equipment Products Program provides prescriptive incentive payments to non-residential customers to encourage and partially offset the cost of the installation of new high efficiency equipment in new and existing nonresidential establishments and efficiency-directed repairs to maintain or enhance high efficiency levels in currently installed equipment. Measures include, but are not limited to, VFD air compressors, barrel wraps, and pellet dryer insulation.

Non-Residential Smart $aver® Energy Efficient Pumps and Drives Products Program provides prescriptive incentive payments to non-residential customers to encourage and partially offset the cost of the installation of new high efficiency equipment in new and existing nonresidential establishments and efficiency-directed repairs to maintain or enhance efficiency levels in currently installed equipment. Measures include, but are not limited to, pumps and VFD on HVAC pumps and fans.

Non-Residential Smart $aver® Custom Program provides custom incentive payments to non-residential customers to encourage and partially offset the cost of the installation of new high efficiency equipment in new and existing non-residential establishments. This program allows for eligible customers to apply for and the Company to provide custom incentives in the amount up to 75% of the installed cost difference between standard equipment and new higher efficiency equipment or efficiency-directed repair activities in order to cover measures and efficiency driven activities that are not offered in the various Non-Residential Smart $aver prescriptive programs.

Non-Residential Smart $aver® Custom Energy Assessments Program provides customers who may be unaware of EE opportunities at their facilities with a custom incentive payment in the amount up to 50% of the costs of a qualifying energy assessment. The purpose of this component of the program is to overcome financial barriers by off-setting a customer's upfront costs to identify and evaluate EE projects that will lead to the installation of energy efficient measures. The scope of an energy assessment may include but is not limited to a facility energy audit, a new construction/renovation energy performance simulation, a system energy study and retro-commissioning service. After the energy assessment is complete, program participants may receive an additional custom incentive payment in the amount of up to 75% of the installed cost difference between standard equipment and higher efficiency equipment or efficiency-directed repair activities.

Non-Residential Smart $aver® Program			
Cumulative as of:	**Measures**	**Energy Savings (MWh)**	**Peak Demand (kW)**
December 31, 2013	1,677,205	844,118	139,331

Small Business Energy Saver Program is modeled after the SBES program offered by Duke Energy Progress. The primary objective of the Program is to reduce energy usage by improving energy efficiency through the offer and installation of eligible energy efficiency measures. Program measures will address major end-uses in lighting, refrigeration, and HVAC applications. The Program is available to existing non-residential establishments served on a Duke Energy Carolinas general service or industrial rate schedule from the Duke Energy Carolinas' retail distribution system that are not opted-out of the EE portion of Rider EE. Program participants must have an average annual demand of 100 kW or less per active account. Participants may be owner-occupied or tenant facilities with owner permission.

This program was recently approved to be offered in South Carolina and on August13, 2014, was also approved by the NCUC in North Carolina.

Smart Energy in Offices Program is designed to increase the energy efficiency of targeted customers by engaging building occupants, tenants, property managers and facility teams with information, education, and data to drive behavior change and reduce energy consumption. This Program will leverage communities to target owners and managers of potential participating accounts by providing participants with detailed information on the account/building's energy usage, support to launch energy saving campaigns, information to make comparisons between their building's energy performance and others within their community and actionable recommendations to improve their energy performance. The Program is available to existing non-residential accounts located in eligible commercial buildings served on a Duke Energy Carolinas' general service rate schedule from the Duke Energy Carolinas' retail distribution system that are not opted out of the EE portion of the Rider EE.

This program was recently approved to be offered in South Carolina and on August13, 2014, was also approved by the NCUC in North Carolina.

Pilot

Energy Management and Information Services Pilot is designed to test providing qualified commercial or institutional customer facilities with a systematic approach to reduce energy and persistently maintain the savings over time. The Company will provide the customer with an energy management and information system ("EMIS") Software-as-a-Service ("SaaS") and perform a remote or light on-site energy assessment focused on low-cost operational EE measures. The EMIS SaaS will use interval meter data from the customer's meter to give valuable insights into areas where efficiency has been gained as well as additional opportunities for efficiency. The customer will also implement a bundle of low cost operational and maintenance-based energy efficient measures that meet certain financial investment criteria.

Demand Side Management Programs

DEC's current DSM programs will be presented in two sections: Demand Response Direct Load Control Programs and Demand Response Interruptible Programs and Related Rate Tariffs.

Demand Response – Direct Load Control Programs

These programs can be dispatched by the utility and have the highest level of certainty due to the participant not having to directly respond to an event. DEC's current direct load control programs are:

Residential

Power Manager® provides residential customers a voluntary demand response program that allows Duke Energy Carolinas to limit the run time of participating customers' central air conditioning (cooling) systems to reduce electricity demand. Power Manager may be used to completely interrupt service to the cooling system when the Company experiences capacity problems. In addition, the Company may intermittently interrupt (cycle) service to the cooling system. For their participation in Power Manager, customers receive bill credits during the billing months of June through September.

Power Manager provides DEC with the ability to reduce and shift peak loads, thereby enabling a corresponding deferral of new supply-side peaking generation and enhancing system reliability.

Participating customers are impacted by (1) the installation of load control equipment at their residence, (2) load control events which curtail the operation of their air conditioning unit for a period of time each hour, and (3) the receipt of bill credits from DEC in exchange for allowing DEC the ability to control their electric equipment.

Power Manager Program			
As of:	**Participants (customers)**	**Devices (switches)**	**Summer 2013 Capability (MW)**
December 31, 2013	157,538	185,078	328

Source: Impact Evaluation and Review of the 2013 Power Manager® Program for the Carolina System, May 30, 2014

The following table shows Power Manager® program activations that were not for testing purposes from June 1, 2011 through December 31, 2013.

Power Manager® Program Activations*			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction****
June 21, 2011 – 2:30 PM	June 21, 2011 – 5:00 PM	150	101
July 11, 2011 – 2:30 PM	July 11, 2011 – 6:00 PM	210	101
July 13, 2011 – 2:30 PM	July 13, 2011 – 6:00 PM	210	102
July 20, 2011 – 2:30 PM	July 20, 2011 – 5:00 PM	150	108
July 21, 2011 – 2:30 PM	July 21, 2011 – 5:00 PM	150	115
July 29, 2011 – 2:30 PM	July 29, 2011 – 5:00 PM	150	110

August 2, 2011 – 3:30 PM	August 2, 2011 – 6:00 PM	150	115
June 29, 2012 – 2:30 PM	June 29, 2012 – 5:00 PM	150	152
July 9, 2012 – 1:30 PM	July 9, 2012 – 5:00 PM	210	113
July 17, 2012 – 2:30 PM	July 17, 2012 – 5:00 PM	150	141
July 26, 2012 – 2:30 PM	July 26, 2012 – 6:00 PM	210	143
July 27, 2012 – 1:30 PM	July 27, 2012 – 4:00 PM	150	152
July 18, 2013 – 2:30 PM	July 18, 2013 – 5:00 PM	150	116
July 19, 2013 – 1:30 PM	July 19, 2013 – 4:00 PM	150	112
July 24, 2013 – 1:30 PM	July 24, 2013 – 4:00 PM	150	150
August 12, 2013 – 1:30 PM	August 12, 2013 – 4:00 PM	150	158
August 29, 2013 – 1:30 PM	August 29, 2013 – 4:00 PM	150	157
September 10, 2013 – 2:30 PM	September 10, 2013 – 5:00 PM	150	143
September 11, 2013 – 2:30 PM	September 11, 2013 – 5:30 PM	180	123

** The values in this table represent events during which Power Manager switches were cycled, and do not reflect the full shed potential of the switch.*

*** MW Load Reduction is the average load reduction "at the generator" over the event period for full clock hours.*

Source: Impact Evaluation and Review of the 2013 Power Manager® Program for the Carolina System, May 30, 2014

Non-Residential

Demand Response – Interruptible Programs and Related Rate Structures

These programs rely either on the customer's ability to respond to a utility-initiated signal requesting curtailment, or on rates with price signals that provide an economic incentive to reduce or shift load. Timing, frequency, and nature of the load response depend on customers' actions after notification of an event or after receiving pricing signals. Duke Energy Carolinas' current interruptible and time-of-use rate programs include:

PowerShare® is a non-residential curtailment program consisting of four options: an emergency only option for curtailable load (PowerShare® Mandatory), an emergency only option for load curtailment using on-site generators (PowerShare® Generator), an economic based voluntary option (PowerShare® Voluntary) and a combined emergency and economic option that allows for increased notification time of events (PowerShare® CallOption).

PowerShare® Mandatory: Participants in this emergency only option will receive capacity credits monthly based on the amount of load they agree to curtail during utility-initiated emergency events. Participants also receive energy credits for the load curtailed during events. Customers enrolled may also be enrolled in PowerShare® Voluntary and eligible to earn additional credits.

PowerShare® Mandatory Program		
As of:	**Participants**	**Summer 2013 Capability (MW)**
December 31, 2013	180	363

The following table shows PowerShare® Mandatory program activations that were not for testing purposes from June 1, 2011 through December 31, 2013.

PowerShare® Mandatory Program Activations			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction***
June 1, 2011 – 1:00 PM	June 1, 2011 – 6:00 PM	300	334
July 12, 2011 – 1:00 PM	July 12, 2011 – 5:00 PM	240	339

**MW Load Reduction is the average load reduction "at the generator" over the event period.*

PowerShare® Generator: Participants in this emergency only option will receive capacity credits monthly based on the amount of load they agree to curtail (i.e. transfer to their on-site generator) during utility-initiated emergency events and their performance during monthly test hours. Participants also receive energy credits for the load curtailed during events.

PowerShare® Generator Statistics		
As of:	**Participants**	**Summer 2013 Capability (MW)**
December 31, 2013	9	11

The following table shows PowerShare® Generator program activations that were not for testing purposes from June 1, 2011 through December 31, 2013.

PowerShare® Generator Program Activations			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction***
June 1, 2011 – 1:00 PM	June 1, 2011 – 6:00 PM	300	17
July 12, 2011 – 1:00 PM	July 12, 2011 – 5:00 PM	240	13

**MW Load Reduction is the average load reduction "at the generator" over the event period.*

PowerShare® Voluntary: Enrolled customers will be notified of pending emergency or economic events and can log on to a website to view a posted energy price for that particular event. Customers will then have the option to participate in the event and will be paid the posted energy credit for load curtailed. Since this is a voluntary event program, no capacity benefit is recognized for this program and no capacity incentive is provided. The values below represent participation in PowerShare® Voluntary only and do not double count the participants in PowerShare® Mandatory that also participate in PowerShare® Voluntary.

PowerShare® Voluntary Program		
As of:	**Participants**	**Summer Capability (MW)**
December 31, 2013	8	N/A

The following table shows PowerShare® Voluntary program activations that were not for testing purposes from June 1, 2011 through December 31, 2013.

PowerShare® Voluntary Program Activations			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction***
June 1, 2011 – 1:00 PM	June 1, 2011 – 9:00 PM	480	2
June 2, 2011 – 2:00 PM	June 2, 2011 – 8:00 PM	360	16
July 20, 2011 – 1:00 PM	July 20, 2011 – 7:00 PM	360	2
July 21, 2011 – 1:00 PM	July 21, 2011 – 7:00 PM	360	2
July 22, 2011 – 11:00 AM	July 22, 2011 – 4:00 PM	300	4
August 3, 2011 – 2:00 PM	August 3, 2011 – 7:00 PM	300	2

**MW Load Reduction is the average load reduction "at the generator" over the event period.*

PowerShare® CallOption: This program offers a participating customer the ability to receive credits when the customer agrees, at the Company's request, to reduce and maintain its load by a minimum of 100 kW during Emergency and/or Economic Events. Credits are paid for the load available for curtailment, and charges are applicable when the customer fails to reduce load in accordance with the participation option it has selected. Participants are obligated to curtail load during emergency events. CallOption offers four participation options to customers: PS 0/5, PS 5/5, PS 10/5 and PS 15/5. All options include a limit of five Emergency Events and set a limit for Economic Events to 0, 5, 10 and 15 respectively.

PowerShare® CallOption Program		
As of:	**Participants**	**Summer 2013 Capability (MW)**
December 31, 2013	0	.03

Note: Customer was available for Summer 2013 Capability but left program prior to December 31, 2013.

The following table shows PowerShare® CallOption program activations that were not for testing purposes from June 1, 2011 through December 31, 2013.

PowerShare®CallOption Program Activations			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction***
July 27, 2012 – 1:00 PM	July 27, 2012 – 9:00 PM	480	0.2

**MW Load Reduction is the average load reduction "at the generator" over the event period.*

PowerShare® CallOption 200: This new, high involvement CallOption is targeted at customers with very flexible load and curtailment potential of up to 200 hours of economic load curtailment each year. This option will function essentially in the same manner as the Company's other CallOption offers. However, customers who participate will experience considerably more requests for load curtailment for economic purposes. Participants will remain obligated to curtail load during up to 5 emergency events.

The program was not available for customer participation until January 1, 2014.

PowerShare® CallOption 200 Program		
As of:	**Participants**	**Summer Capability (MW)**
December 31, 2013	0	N/A

The table below incorporates December 31, 2013 participation levels for demand response programs and the capability of these programs projected for the summer of 2014.

Demand Side Management Programs and Capability		
Program Name	**Program Participation as of 12/31/13**	**2014 Estimated Summer IRP Capability (MW)**
IS	61	165
SG	82	19
PowerShare® Mandatory	180	364
PowerShare® Generator	9	30
PowerShare® Voluntary	8	N/A
PowerShare® CallOption	-	-
-- Level 0/5	0	N/A
-- Level 5/5	0	N/A
-- Level 10/5	0	N/A
-- Level 15/5	0	N/A
-- Level 200	0	N/A
Total	**340**	**608**
Power Manager® (Switches)	185,078	429
Grand Total	**-**	**1,007**

Source: 2014 DEC IRP Forecast, Base Case

Related Rate Tariffs

Residential Time-of-Use (including a Residential Water Heating rate)

This category of rates for residential customers incorporates differential seasonal and time-of-day pricing that encourages customers to shift electricity usage from on-peak time periods to off-peak periods. In addition, there is a Residential Water Heating rate for off-peak water heating electricity use.

General Service and Industrial Optional Time-of-Use rates

This category of rates for general service and industrial customers incorporates differential seasonal and time-of-day pricing that encourages customers to use less electricity during on-peak time periods and more during off-peak periods.

Hourly Pricing for Incremental Load

This category of rates for general service and industrial customers incorporates prices that reflect DEC's estimation of hourly marginal costs. In addition, a portion of the customer's bill is calculated under their embedded-cost rate. Customers on this rate can choose to modify their usage depending on hourly prices.

The projected impacts from these programs are already included in the assessment of generation needs due to the fact that their historical impacts are captured in the forecast of loads.

Future EE and DSM programs

DEC is continually seeking to enhance its EE and DSM portfolio by: (1) adding new programs or expanding existing programs to include additional measures, (2) program modifications to account for changing market conditions and new M&V results, and (3) other EE pilots.

Potential new programs and/or measures will be reviewed with the DSM Collaborative then submitted to the Public Utility Commissions as required for approval.

Estimates of the impacts of these yet-to-be-developed programs have been included in this year's analysis of generation needs.

EE and DSM Program Screening

The Company uses the DSMore model to evaluate the costs, benefits, and risks of EE and DSM programs and measures. DSMore is a financial analysis tool designed to estimate of the capacity and energy values of EE and DSM measures at an hourly level across distributions of weather conditions and/or energy costs or prices. By examining projected program performance and cost effectiveness over a wide variety of weather and cost conditions, the Company is in a better position to measure the risks and benefits of employing EE and DSM measures versus traditional

generation capacity additions, and further, to ensure that DSM resources are compared to supply side resources on a level playing field.

The analysis of energy efficiency and demand side management cost-effectiveness has traditionally focused primarily on the calculation of specific metrics, often referred to as the California Standard tests: Utility Cost Test (UCT), Rate Impact Measure (RIM) Test, Total Resource Cost (TRC) Test and Participant Test. DSMore provides the results of those tests for any type of EE or DSM program.

- The UCT compares utility benefits (avoided costs) to the costs incurred by the utility to implement the program, and does not consider other benefits such as participant savings or societal impacts. This test compares the cost (to the utility) to implement the measures with the savings or avoided costs (to the utility) resulting from the change in magnitude and/or the pattern of electricity consumption caused by implementation of the program. Avoided costs are considered in the evaluation of cost-effectiveness based on the projected cost of power, including the projected cost of the utility's environmental compliance for known regulatory requirements. The cost-effectiveness analyses also incorporate avoided transmission and distribution costs, and load (line) losses.

- The RIM Test, or non-participants test, indicates if rates increase or decrease over the long-run as a result of implementing the program.

- The TRC Test compares the total benefits to the utility and to participants relative to the costs to the utility to implement the program along with the costs to the participant. The benefits to the utility are the same as those computed under the UCT. The benefits to the participant are the same as those computed under the Participant Test, however, customer incentives are considered to be a pass-through benefit to customers. As such, customer incentives or rebates are not included in the TRC.

- The Participant Test evaluates programs from the perspective of the program's participants. The benefits include reductions in utility bills, incentives paid by the utility and any State, Federal or local tax benefits received.

The use of multiple tests can ensure the development of a reasonable set of cost-effective DSM and EE programs and indicate the likelihood that customers will participate.

Energy Efficiency and Demand-Side Management Program Forecasts

The Public Staff, in their comments on the 2013 IRP filing, Docket E-100, Sub137, made the following recommendations relative to EE/DSM analysis and forecasts:

9. *The IOUs should continue to monitor and report any changes of more than 10% in the energy and capacity savings derived from DSM / EE between successive IRPs, and evaluate and discuss any changes on a program specific basis. Any issues impacting program deployment should be thoroughly explained and quantified in future IRPs.*

10. *The IOUs should develop a consistent method of evaluating their DSM / EE portfolios and incorporate the savings in a manner that provides a clearer understanding of the year-by-year changes occurring in the portfolios and their impact on the load forecast and resource plan in future IRPs. The savings impacts should be represented on a net basis, taking into account any NTG impacts derived through EM&V processes.*

11. *DEP and DEC should specifically identify the values of DSM / EE portfolio capacity and energy savings separately in their load forecast tables and not embed these values in the system peak load or energy.*

12. *The IOUs should account for all of their DSM / EE program savings from programs approved pursuant to G.S. 62-133.9 and Commission Rule R8-68, regardless of when those measures were installed.*

13. *DEP and DEC should each adopt one methodology of evaluating the DSM / EE components of the IRP and remain consistent year-to-year. If an IOU determines that a change in methodology is required or appropriate, these changes should be thoroughly explained, justified, and reconciled to the savings projected in the previous IRP.*

In response to Recommendation Number 13 above, there were no significant changes in the EE forecast methodology for the 2014 IRP.

In 2011, DEC commissioned a new EE market potential study to obtain new estimates of the technical, economic and achievable potential for EE savings within the DEC service area. The final report was prepared by Forefront Economics Inc. and H. Gil Peach and Associates, LLC and was completed on February 23, 2012 and included an achievable potential for planning year 5 and an economic potential for planning year 20.

In early 2013, this market potential study was updated by Forefront Economics Inc. to estimate the achievable potential on an annual basis throughout the 20 year horizon in order to align the forecast methodology with the integrated resources planning being done for DEP.

The results of this achievable potential estimation were blended together with the DEC forecast for the 5-year planning horizon to create an overall forecast that used the same methodology to the 2013 DEC IRP for the first 5 years. For years 6 through 10, DEC interpolated between the cumulative achievements at the end of Year 5 and the expected achievements from the Forefront study starting in Year 10. For years 11 through 20, DEC used the incremental achievements estimated by Forefront.

The Forefront study results are suitable for IRP purposes and use in long-range system planning models. This study is also expected to help inform utility program planners regarding the extent of EE opportunities and to provide broadly defined approaches for acquiring savings. This study did not, however, attempt to closely forecast EE achievements in the short-term or from year to year. Such an annual accounting is highly sensitive to the nature of programs adopted as well as the timing of the introduction of those programs. As a result, it was not designed to provide detailed specifications and work plans required for program implementation. This study provides part of the picture for planning EE programs. Fully implementable EE program plans are best developed considering this study along with the experience gained from currently running programs, input from DEC program managers and EE planners, feedback from the DSM Collaborative and with the possible assistance of implementation contractors.

The tables below provide the base case projected load impacts of all DEC EE and DSM programs implemented since the approval of the save-a-watt recovery mechanism in 2009 on a Gross and Net of Free Riders basis (responsive to Recommendation Number 10 above). These load impacts were included in the base case IRP analysis. Note that some years may not sum to the total due to rounding. The Company assumes total EE savings will continue to grow on an annual basis throughout the planning period, however, the components of future programs are uncertain at this time and will be informed by the experience gained under the current plan. The projected MW load impacts from the DSM programs are based upon the Company's continuing, as well as new, DSM programs. Please note that, in response to Recommendation Number 12 above, this table includes a column that shows historical EE program savings since the inception of the EE programs in 2009 through the end of 2013, which accounts for approximately an additional 2,207 GWh of energy savings and 310 MW of summer peak demand savings. The projections also do not include savings from DEC's proposed Integrated Voltage-VAR Control program, which will be discussed later in this document.

Base Case Load Impacts of EE and DSM Programs - Gross Including Free Riders

	Annual MWh Load Reduction		Annual Peak MW Reduction					
Year	Including measures added in 2014 and beyond	Including measures added since 2009	EE	IS	SG	PowerShare	PowerManager	Total Annual Peak
2009-13		2,206,536						
2014	439,799	2,646,334	37	165	19	394	429	1,044
2015	845,866	3,052,401	101	157	19	416	440	1,132
2016	1,272,833	3,479,369	164	149	18	435	453	1,219
2017	1,712,712	3,919,247	230	141	17	453	465	1,307
2018	2,161,679	4,368,214	297	135	16	466	474	1,387
2019	2,637,421	4,843,957	366	129	15	477	479	1,465
2020	3,119,267	5,325,803	440	126	15	481	479	1,541
2021	3,670,534	5,877,069	524	126	15	481	479	1,625
2022	4,272,614	6,479,150	617	126	15	481	479	1,718
2023	4,891,005	7,097,541	715	126	15	481	479	1,816
2024	5,489,403	7,695,938	811	126	15	481	479	1,912
2025	6,097,058	8,303,594	912	126	15	481	479	2,013
2026	6,607,562	8,814,097	1,002	126	15	481	479	2,103
2027	7,073,440	9,279,976	1,081	126	15	481	479	2,182
2028	7,490,168	9,696,704	1,149	126	15	481	479	2,250
2029	7,788,479	9,995,015	1,211	126	15	481	479	2,312

Base Case Load Impacts of EE and DSM Programs - Net of Free Riders

	Annual MWh Load Reduction		Annual Peak MW Reduction					
Year	Including measures added in 2014 and beyond	Including measures added since 2009	EE	IS	SG	PowerShare	PowerManager	Total Annual Peak
2009-13		2,002,276						
2014	345,835	2,348,111	29	165	19	394	429	1,036
2015	653,108	2,655,384	78	157	19	416	440	1,109
2016	976,403	2,978,679	126	149	18	435	453	1,181
2017	1,309,430	3,311,706	176	141	17	453	465	1,252
2018	1,650,017	3,652,293	227	135	16	466	474	1,317
2019	1,958,096	3,960,373	272	129	15	477	479	1,371

2020	2,240,365	4,242,641	316	126	15	481	479	1,417
2021	2,561,605	4,563,882	366	126	15	481	479	1,467
2022	2,910,953	4,913,229	420	126	15	481	479	1,521
2023	3,267,544	5,269,820	478	126	15	481	479	1,579
2024	3,611,736	5,614,013	534	126	15	481	479	1,635
2025	3,958,855	5,961,131	592	126	15	481	479	1,693
2026	4,255,408	6,257,684	645	126	15	481	479	1,746
2027	4,527,686	6,529,962	692	126	15	481	479	1,793
2028	4,773,912	6,776,188	732	126	15	481	479	1,833
2029	4,952,720	6,954,997	770	126	15	481	479	1,871

**Please note that the MWh totals included in the tables above represent the annual year-end impacts associated with EE programs, however, the MWh totals included in the load forecast portion of this document represent the sum of the expected hourly impacts.*

DEC's approved EE plan is consistent with the requirement set forth in the Cliffside Unit 6 CPCN Order to invest 1% of annual retail electricity revenues in EE and DSM programs, subject to the results of ongoing collaborative workshops and appropriate regulatory treatment.

However, pursuing EE and DSM initiatives is not expected to meet the incremental demand for electricity. DEC still envisions the need to secure additional generation, as well as cost-effective renewable generation, but the EE and DSM programs offered by DEC will address a significant portion of this need if such programs perform as expected.

EE Savings Variance since last IRP

In response to Recommendation Number 9 from the Public Staff, the Base Case EE savings forecast of MW and MWh is within 10% of the forecast presented in the 2013 IRP when compared on the cumulative achievements at year 15 of the forecast, however, the current forecast is different from the forecast presented in the 2013 DEC IRP in the following ways:

- The 2014 IRP is based on an updated forecast of DEC's 5 year planning horizon for the period of 2014-18.
- The 2014 Base Case forecast includes an assumption related to new, as yet unidentified EE products that is lower than the similar assumption in the 2013 Base Case forecast. This lower assumption is based on the historical performance of new products added since the original EE portfolio filing in 2009 and projections of future program versus the higher expected savings included in the 2013 IRP.

High EE Savings Projection

DEC also prepared a high EE savings projection designed to meet the following Energy Efficiency Performance Targets for five years, as set forth in the December 8, 2011 Settlement Agreement between Environmental Defense Fund, the South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, and Duke Energy

Corporation, Progress Energy, Inc., and their public utility subsidiaries Duke Energy Carolinas LLC and Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc.

- An annual savings target of 1% of the previous year's retail electricity sales beginning in 2015; and
- A cumulative savings target of 7% of retail electricity sales over the five year time period of 2014 through 2018.

For the purposes of this IRP, the high EE savings projection is being treated as a resource planning sensitivity that will also serve as an aspirational target for future EE plans and programs. The high EE savings projections are well beyond the level of savings attained by DEC in the past and higher than the forecasted savings contained in the new market potential study. The effort to meet them will require a substantial expansion of DEC's current Commission-approved EE portfolio. New programs and measures must be developed, approved by regulators, and implemented within the next few years. More importantly, significantly higher levels of customer participation must be generated. Additionally, flexibility will be required in operating existing programs in order to quickly adapt to changing market conditions, code and standard changes, consumer demands, and emerging technologies.

The tables below show the expected High Case savings treated as a sensitivity in this IRP on both Gross and Net of Free Riders basis.

High Case Load Impacts of EE and DSM Programs – Gross Including Free Riders

	Annual MWh Load Reduction		Annual Peak MW Reduction					
Year	Including measures added in 2014 and beyond	Including measures added since 2009	EE	IS	SG	PowerShare	PowerManager	Total Annual Peak
2009-13		2,206,536						
2014	439,799	2,646,335	37	165	19	394	429	1,044
2015	1,262,967	3,469,502	134	157	19	416	440	1,165
2016	2,093,510	4,300,045	260	149	18	435	453	1,315
2017	2,928,929	5,135,465	386	141	17	453	465	1,463
2018	3,768,370	5,974,905	514	135	16	466	474	1,604
2019	4,611,871	6,818,406	639	129	15	477	479	1,738
2020	5,459,178	7,665,714	770	126	15	481	479	1,871
2021	6,308,739	8,515,275	908	126	15	481	479	2,009
2022	7,160,581	9,367,117	1,046	126	15	481	479	2,147
2023	8,014,797	10,221,333	1,184	126	15	481	479	2,285
2024	8,871,662	11,078,197	1,319	126	15	481	479	2,420
2025	9,732,783	11,939,319	1,464	126	15	481	479	2,565
2026	10,596,710	12,803,246	1,604	126	15	481	479	2,705
2027	11,464,059	13,670,595	1,744	126	15	481	479	2,845
2028	12,339,200	14,545,736	1,879	126	15	481	479	2,980
2029	13,222,537	15,429,073	2,026	126	15	481	479	3,127

High Case Load Impacts of EE and DSM Programs - Net of Free Riders

	Annual MWh Load Reduction		Annual Peak MW Reduction					
Year	Including measures added in 2014 and beyond	Including measures added since 2009	EE	IS	SG	PowerShare	PowerManager	Total Annual Peak
2009-13		2,002,276						
2014	345,835	2,348,111	29	165	19	394	429	1,036
2015	975,159	2,977,435	103	157	19	416	440	1,135
2016	1,605,951	3,608,228	199	149	18	435	453	1,254
2017	2,239,272	4,241,548	295	141	17	453	465	1,372
2018	2,876,410	4,878,686	392	135	16	466	474	1,483
2019	3,423,984	5,426,260	474	129	15	477	479	1,574
2020	3,920,970	5,923,246	553	126	15	481	479	1,654
2021	4,402,766	6,405,042	634	126	15	481	479	1,735
2022	4,878,539	6,880,815	713	126	15	481	479	1,814
2023	5,354,462	7,356,738	791	126	15	481	479	1,892
2024	5,837,084	7,839,360	868	126	15	481	479	1,969
2025	6,319,551	8,321,828	951	126	15	481	479	2,052
2026	6,824,503	8,826,779	1,033	126	15	481	479	2,134
2027	7,338,107	9,340,383	1,116	126	15	481	479	2,217
2028	7,864,477	9,866,753	1,198	126	15	481	479	2,299
2029	8,408,256	10,410,533	1,288	126	15	481	479	2,389

At this time, there is too much uncertainty in the development of new technologies that will impact future programs and/or enhancements to existing programs, as well as in the ability to secure high levels of customer participation, to risk using the high EE savings projection in the base assumptions for developing the 2014 IRP. However, the high EE savings forecast was evaluated in two portfolios included in this IRP. DEC expects that as steps are made over time toward actually achieving higher levels of program participation and savings, then the EE savings forecast used for integrated resource planning purposes will continue to be revised in future IRP's to reflect the most realistic projection of EE savings.

Programs Evaluated but Rejected

Duke Energy Carolinas has not rejected any cost-effective programs as a result of its EE and DSM program screening.

Looking to the Future - Grid Modernization (Smart Grid Impacts)

Duke Energy is pursuing implementation of grid modernization throughout the enterprise with a vision of creating a sustainable energy future for our customers and our business by being a leader of innovative approaches that will modernize the grid.

Duke Energy Carolinas is reviewing an Integrated Volt-Var Control (IVVC) project that will better manage the application and operation of voltage regulators (the Volt) and capacitors (the VAR) on the Duke Energy Carolinas distribution system. In general, the project tends to optimize the operation of these devices, resulting in a "flattening" of the voltage profile across an entire circuit, starting at the substation and continuing out to the farthest endpoint on that circuit. This flattening of the voltage profile is accomplished by automating the substation level voltage regulation and capacitors, line capacitors and line voltage regulators while integrating them into a single control system. This control system continuously monitors and operates the

voltage regulators and capacitors to maintain the desired "flat" voltage profile. Once the system is operating with a relatively flat voltage profile across an entire circuit, the resulting circuit voltage at the substation can then be operated at a lower overall level. Lowering the circuit voltage at the substation results in an immediate reduction of system loading.

The deployment of an IVVC program for Duke Energy Carolinas is anticipated to take approximately 4 years following project approval. This IVVC program is projected to reduce future distribution-only peak needs by 0.20% in 2017, 0.4% in 2018, 0.6% in 2019, 1.0% in 2020 and following years.

Lockhart Power Company

Lockhart Power Company's primary demand-side program is its Industrial Interruptible Service Rate (IS-1), available only to industrial customers receiving concurrent service from the Company under Schedule I, with a metered demand of 750 kilowatts or more served from the Company's transmission system. Under this Rider the Customer agrees, at the Company's request, to reduce and maintain its load at or below the level specified in the individual contract. The Company's request to interrupt service may be at any time the Company or its power supplier has capacity problems.

In addition, the standard residential rate (R) has an inclining feature, i.e. Lockhart charges a somewhat higher rate for all usage above 1,000 kWh each month. This provides incentives to customers to reduce their consumption of electricity.

Duke Energy Progress

Demand Side Management and Energy Efficiency Programs

DEP continues to pursue a long-term, balanced capacity and energy strategy to meet the future electricity needs of its customers. This balanced strategy includes a strong commitment to demand side management and EE programs, investments in renewable and emerging energy technologies, and state-of-the art power plants and delivery systems.

DEP uses EE and DSM programs to help manage customer demand in an efficient, cost-effective manner. These programs can vary greatly in their dispatch characteristics, size and duration of load response, certainty of load response, and level and frequency of customer participation. In general, programs are offered in two primary categories: EE programs that reduce energy consumption and DSM programs that reduce peak demand (demand-side management or demand response programs and certain rate structure programs).

DEP's DSM/EE portfolio currently consists of the following programs, as approved by the North Carolina Utilities Commission (NCUC) and/or the Public Service Commission of South Carolina (PSCSC).

- Residential Home Energy Improvement
- Residential New Construction
- Residential Neighborhood Energy Saver (Low-Income)
- Residential Appliance Recycling Program
- Residential Energy Efficient Benchmarking Program
- Energy Efficient Lighting Program
- Commercial, Industrial, and Governmental (CIG) Energy Efficiency
- Small Business Energy Saver
- Distribution System Demand Response (DSDR) Program
- Residential Prepay Pilot Program *(Approved in South Carolina only)*
- Residential EnergyWise Home^{sm}
- CIG Demand Response Automation Program

DSM/EE Program Descriptions

Residential Home Energy Improvement Program

Program Type: Energy Efficiency

The Residential Home Energy Improvement Program offers DEP customers a variety of energy conservation measures designed to increase energy efficiency for existing residential dwellings that can no longer be considered new construction. The prescriptive menu of energy efficiency measures provided by the program allows customers the opportunity to participate based on the needs and characteristics of their individual homes. Financial incentives are provided to participants for each of the conservation measures promoted within this program. The program utilizes a network of pre-qualified contractors to install each of the following energy efficiency measures:

- High-Efficiency Heat Pumps and Central A/C
- Duct Repair
- Level-2 HVAC Tune-up
- Insulation Upgrades/Attic Sealing
- High Efficiency Room Air Conditioners
- Heat Pump Water Heater

Residential Home Energy Improvement Program			
As of:	Participants	Gross MWh Energy Savings	Net Peak Demand (kW)
December 31, 2013	93,502	32,145	30,961

Residential New Construction Program

Program Type: Energy Efficiency

The Residential New Construction program serves as a replacement for the Residential Home Advantage program which ended on March 1, 2013. The Residential New Construction Program offers single family builders and multi-family developers equipment incentives for installing high efficiency HVAC and/or heat pump water heating equipment in new residential construction; or whole house incentives for meeting or exceeding the 2012 North Carolina Energy Conservation Code High Efficiency Residential Option ("HERO").

The primary objectives of this program are to reduce system peak demands and energy consumption within new homes. New construction represents a unique opportunity for capturing cost effective EE savings by encouraging the investment in energy efficiency features that would otherwise be impractical or more costly to install at a later time. These are often referred to as lost opportunities.

Residential New Construction Program			
As of:	Participants	Gross MWH Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	8,046	12,241	4,011

Note: The participants and impacts include both the Residential Home Advantage and New Construction programs.

Residential Neighborhood Energy Saver (Low-Income) Program

Program Type: Energy Efficiency

DEP's Neighborhood Energy Saver Program assists low-income residential customers with energy conservation efforts which will in turn lessen their household energy costs. The program provides assistance to low-income families by installing a comprehensive package of energy conservation measures that lower energy consumption at no cost to the customer. Prior to installing measures, an energy assessment is conducted on each residence to identify the appropriate measures to install. In addition to the installation of energy efficiency measures, an important component of the Neighborhood Energy Saver program is the provision for one-on-one energy education. Each household receives information on energy efficiency techniques and is encouraged to make behavioral changes to help reduce and control their energy usage. The Neighborhood Energy Saver program is being implemented utilizing a whole neighborhood, door-to-door delivery strategy.

Residential Neighborhood Energy Saver Program			
As of:	Participants	Gross MWh Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	19,228	10,838	1,438

Energy Efficient Lighting Program
Program Type: Energy Efficiency

The Energy Efficient Lighting Program is designed to reduce energy consumption by providing incentives and marketing support through retailers to encourage greater customer adoption of high efficiency lighting products. DEP partners with various manufacturers and retailers across its entire service territory to offer in-store discounts on a wide selection of CFLs, LEDs, and energy-efficient fixtures. The program also targets the purchase of these products through in-store and on-line promotions, while promoting greater awareness through special retail and community events. The program was expanded in 2013 to include new lighting technologies such as LED's, high efficiency incandescent bulbs and energy efficient fixtures.

Energy Efficient Lighting Program			
As of:	Bulbs Sold	Gross MWh Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	9,674,781	786,824	116,146

Residential Appliance Recycling Program
Program Type: Energy Efficiency

The Appliance Recycling Program is designed to reduce energy consumption and provide environmental benefits through the proper removal and recycling of older, less efficient refrigerators and freezers that are operating within residences across the DEP service territory. The program includes scheduling and free appliance pick-up at the customer's location, transportation to a recycling facility, and recovery and recycling of appliance materials. On an annual basis, customers receive free removal and recycling of up to two appliances, as well as an incentive for participation.

Residential Appliance Recycling Program			
As of:	Participants	Gross MWh Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	30,769	32,274	3,547

Residential Energy Efficient Benchmarking Program
Program Type: Energy Efficiency

The Residential Energy Efficient Benchmarking Program is designed to reduce residential electrical consumption by applying behavioral science principals in which a sample of eligible customers receive reports comparing their energy use with neighbors in similar homes. Participants will be periodically mailed the individualized reports and can elect to switch to on-line reports at any time during the duration of the program. In addition to the household

comparative analysis, the reports will provide specific recommendations to motivate participants to reduce their energy consumption. DEP will also deploy an interactive web portal that gives customers greater insight into their energy consumption and actions they can take to become more energy efficient. The web portal will include monthly customer billing data, goal setting and tracking, as well as personalized and community recommended energy efficiency tips.

Residential Energy Efficient Benchmarking Program			
As of:	Participants	Gross MWh Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	43,999	11,945	2,374

Commercial, Industrial, and Governmental (CIG) Energy Efficiency Program
Program Type: Energy Efficiency

The CIG Energy Efficiency Program is available to all CIG customers interested in improving the energy efficiency of their new construction projects or within their existing facilities. New construction incentives provide an opportunity to capture cost effective energy efficiency savings that would otherwise be impractical or more costly to install at a later time. The retrofit market offers a potentially significant opportunity for savings as CIG type customers with older, energy inefficient electrical equipment are often under-funded and need assistance in identifying and retrofitting existing facilities with new high efficiency electrical equipment. The program includes prescriptive incentives for measures that address the following major end-use categories:

- HVAC
- Lighting
- Refrigeration

In addition, the program offers incentives for custom measures to specifically address the individual needs of customers in the new construction or retrofit markets, such as those with more complex applications or in need of energy efficiency opportunities not covered by the prescriptive measures. The program also seeks to meet the following overall goals:

- Educate and train trade allies, design firms and customers to influence selection of energy efficient products and design practices.
- Educate CIG customers regarding the benefits of energy efficient products and design elements and provide them with tools and resources to cost-effectively implement energy-saving projects.
- Obtain energy and demand impacts that are significant, reliable, sustainable and measureable.

- Influence market transformation by offering incentives for cost effective measures.

CIG Energy Efficiency Program			
As of:	Participants	Gross MWh Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	4,505	244,613	58,879

Small Business Energy Saver Program

Program Type: Energy Efficiency

The Small Business Energy Saver Program is a new direct-install type of program designed to encourage the installation of energy efficiency measures in small, "hard to reach" commercial facilities with an annual demand of 100 kW or less. The program provides a complete energy assessment and installation of measures on a turn-key basis. In addition, the program was designed to minimize financial barriers by incorporating aggressive incentives as well as providing payment options for the remainder of participant costs.

Small Business Energy Saver Program			
As of:	Participants	Gross MWh Energy Savings	Gross Peak kW Demand Savings
December 31, 2013	1,518	5,378	3,810

Distribution System Demand Response Program (DSDR)

Program Type: Energy Efficiency in North Carolina; Demand Response in South Carolina

The DSDR program is an application of Smart Grid technology that provides the capability to reduce peak demand for four to six hours at a time, which is the duration consistent with typical peak load periods, while also maintaining customer delivery voltage above the minimum requirement when the program is in use. The increased peak load reduction capability and flexibility associated with DSDR will result in the displacement of the need for additional peaking generation capacity. This capability is accomplished by investing in a robust system of advanced technology, telecommunications, equipment, and operating controls. The DSDR Program will help DEP implement a least cost mix of demand reduction and generation measures that meet the electricity needs of its customers.

Distribution System Demand Response Program			
As of:	Participants	Net Energy Savings (MWh)	Summer Capability (kW)
December 31, 2013	NA	31,690	195

Residential EnergyWise Home^{SM} Program

Program Type: Demand Response

The Residential EnergyWise Home^{SM} Program is a direct load control program that allows DEP, through the installation of load control switches at the customer's premise, to remotely control the following residential appliances.

- Central air conditioning or electric heat pumps
- Auxiliary strip heat on central electric heat pumps (Western Region only)
- Electric water heaters (Western Region only)

For each of the control options above, an initial one-time bill credit is provided to program participants in exchange for allowing DEP to control the listed appliances. The program provides DEP with the ability to reduce and shift peak loads, thereby enabling a corresponding deferral of new supply-side peaking generation and enhancing system reliability. Participating customers are impacted by (1) the installation of load control equipment at their residence, (2) load control events which curtail the operation of their air conditioning, heat pump strip heating or water heating unit for a period of time each hour, and (3) the receipt of an annual bill credit from DEP in exchange for allowing DEP to control their electric equipment.

Residential Energy Wise Home Statistics			
As of:	Participants	Summer Capability (MW)	Winter Capability (MW)
December 31, 2013	102,837	213	9.1

The following table shows Residential EnergyWise Home^{SM} Program activations that were not for testing purposes from June 1, 2012 through June 30, 2014.

Residential EnergyWise Home^{SM}			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction***
7/6/2012 15:00	7/6/2012 17:00	120	97.1
7/26/2012 15:00	7/26/2012 18:00	180	101.0
3/22/2013 6:45	3/22/2013 7:30	45	6.3
7/18/2013 15:00	7/18/2013 18:00	120	94.3
8/12/2013 15:00	8/12/2013 18:00	180	90.7
1/7/2014 6:30	1/7/2014 9:00	150	9.1
1/8/2014 6:30	1/8/2014 9:00	150	9.1
1/22/2014 6:30	1/22/2014 7:30	60	9.1

MW Load Reduction is the average load reduction "at the generator" over the event period.

Commercial, Industrial, and Governmental (CIG) Demand Response Automation Program
Program Type: Demand Response

The CIG Demand Response Automation Program allows DEP to install load control and data acquisition devices to remotely control and monitor a wide variety of electrical equipment capable of serving as a demand response resource. The goal of this program is to utilize customer education, enabling two-way communication technologies, and an event-based incentive structure to maximize load reduction capabilities and resource reliability. The primary objective of this program is to reduce DEP's need for additional peaking generation. This will be accomplished by reducing DEP's seasonal peak load demands, primarily during the summer months, through deployment of load control and data acquisition technologies.

In response to EPA regulations finalized January 2013, a new Emergency Generator Option was implemented effective January 1, 2014, to allow customers with emergency generators to continue participation in demand response programs. To comply with the new rule, dispatch of the Emergency Generator Option must be limited to NERC Level II (EEA2) except for an annual readiness test. The original DRA program design, now referred to as the Curtailable Option, will continue to be dispatched as it has historically.

CIG Demand Response Automation Statistics			
		Peak Capability (MW)	
As of	Premises	Summer	Winter
December 31, 2013	46	18.1	10.7

The table below shows information for each CIG Demand Response Automation Program non-test control event from June 1, 2012 through June 30, 2014.

CIG Demand Response Automation			
Start Time	End Time	Duration (Minutes)	MW Load Reduction
7/6/2012 13:00	7/6/2012 18:00	300	14.1
7/26/2012 13:00	7/26/2012 19:00	360	15.5
8/16/2012 13:00	8/16/2012 18:00	300	15.4
7/18/2013 13:00	7/18/2013 17:30	270	18.9
8/9/2013 13:00	8/9/2013 19:00	360	17.4
8/12/2013 13:00	8/12/2013 19:00	360	15.6
1/7/2014 8:30	1/7/2014 11:00	150	5.7

1/8/2014 6:00	1/8/2014 10:00	240	7.4
1/22/2014 6:30	1/22/2014 9:30	180	8.0

**MW Load Reduction is the average load reduction "at the generator" over the event period.*

Previously Existing Demand Side Management and Energy Efficiency Programs

Prior to the passage of North Carolina Senate Bill 3 in 2007, DEP had a number of DSM/EE programs in place. These programs are available in both North and South Carolina and include the following:

Energy Efficient Home Program

Program Type: Energy Efficiency

In the early 1980s, DEP introduced an Energy Efficient Home program that provides residential customers with a 5% discount of the energy and demand portions of their electricity bills when their homes met certain thermal efficiency standards that were significantly above the existing building codes and standards. Homes that pass an ENERGY STAR® test receive a certificate as well as a 5% discount on the energy and demand portions of their electricity bills.

Voltage Control

Program Type: Demand Response

This procedure involves reducing distribution voltage, at a level that does not adversely impact customer equipment or operations, during periods of capacity constraints in order to reduce system peak demand.

Curtailable Rates

Program Type: Demand Response

DEP began offering its curtailable rate options in the late 1970s, whereby industrial and commercial customers receive credits for DEP's ability to curtail system load during times of high energy costs and/or capacity constrained periods.

Curtailable Rate Activations			
Date	Start/End Time	Duration (Minutes)	MW Load Reduction*
1/7/2014	06:30-11:00	270	211
1/8/2014	06:00-10:00	240	243

**MW Load Reduction is the average load reduction "at the generator" over the event period.*

Time-of-Use Rates

Program Type: Demand Response

DEP has offered voluntary Time-of-Use (TOU) rates to all customers since 1981. These rates provide incentives to customers to shift consumption of electricity to lower-cost off-peak periods and lower their electric bill.

Thermal Energy Storage Rates

Program Type: Demand Response

DEP began offering thermal energy storage rates in 1979. The present General Service (Thermal Energy Storage) rate schedule uses two-period pricing with seasonal demand and energy rates applicable to thermal storage space conditioning equipment. Summer on-peak hours are noon to 8 p.m. and non-summer hours of 6 a.m. to 1 p.m. weekdays.

Real-Time Pricing

Program Type: Demand Response

DEP's Large General Service (Experimental) Real Time Pricing tariff was implemented in 1998. This tariff uses a two-part real time pricing rate design with baseline load representative of historic usage. Hourly rates are provided on the prior business day. A minimum of 1 MW load is required. This rate schedule is presently fully subscribed.

Summary of Available Existing Demand-Side and Energy Efficiency Programs

The following table provides current information available at the time of this report on DEP's existing DSM/EE programs (i.e., those programs that were in effect prior to January 1, 2008). This information, where applicable, includes program type, capacity, energy, and number of customers enrolled in the program as of the end of 2013, as well as load control activations since those enumerated in DEP's last biennial resource plan. The energy savings impacts of these existing programs are embedded within DEP's load and energy forecasts.

Program Description	Type	Capacity (MW)	Annual Energy (MWH)	Participants	Activations Since Last Biennial Report
Energy Efficiency Programs[6]	EE	477	NA	NA	NA
Real Time Pricing (RTP)	DSM	55	NA	105	NA

[6] Impacts from these existing programs are embedded within the load and energy forecast.

Commercial & Industrial TOU	DSM	6	NA	29,836	NA
Residential TOU	DSM	11	NA	28,409	NA
Curtailable Rates	DSM	285	NA	86	2
Voltage Control	DSM	75	NA	NA	88

Since DEP's last biennial resource plan was filed on September 4, 2012, there have been 88 voltage control activations through July 16, 2013. The following table shows the date, starting and ending time, and duration for all voltage control activations over the past two years.

Voltage Control		
Start Time	**End Time**	**Duration (Minutes)**
9/4/2012 11:03	9/4/2012 11:52	49
9/7/2012 13:31	9/7/2012 14:30	59
9/13/2012 21:52	9/13/2012 22:43	51
9/16/2012 15:09	9/16/2012 16:03	54
9/17/2012 21:51	9/17/2012 22:34	43
10/8/2012 14:00	10/8/2012 15:00	60
10/19/2012 10:02	10/19/2012 10:49	47
10/26/2012 10:32	10/26/2012 11:35	63
10/31/2012 15:00	10/31/2012 15:17	17
11/1/2012 14:06	11/1/2012 14:21	15
11/2/2012 7:00	11/2/2012 7:34	34
11/2/2012 15:01	11/2/2012 15:20	19
11/8/2012 16:41	11/8/2012 16:55	14
11/9/2012 10:15	11/9/2012 10:46	31
12/23/2012 7:45	12/23/2012 8:08	23
12/31/2012 7:34	12/31/2012 11:00	206
12/31/2012 16:25	12/31/2012 16:56	31
1/3/2013 14:28	1/3/2013 14:58	30
1/4/2013 9:37	1/4/2013 9:59	22
1/21/2013 13:23	1/21/2013 13:45	22
1/23/2013 10:18	1/23/2013 10:34	16
1/23/2013 15:34	1/23/2013 16:27	53
1/24/2013 14:03	1/24/2013 15:12	69
2/12/2013 15:01	2/12/2013 15:08	7
3/7/2013 13:15	3/7/2013 13:45	30
3/20/2013 8:34	3/20/2013 9:02	28
3/21/3013 7:02	3/21/2013 7:30	28

3/22/2013 6:45	3/22/2013 7:30	45
6/12/2013 10:59	6/12/2013 11:31	32
6/26/2013 11:09	6/26/2013 11:39	30
7/11/2013 15:00	7/11/2013 18:00	180
7/17/2013 15:01	7/17/2013 18:04	183
7/18/2013 14:01	7/18/2013 17:00	179
7/23/2013 14:03	7/23/2013 17:02	179
7/25/2013 11:00	7/25/2013 11:15	15
7/31/2013 15:02	7/31/2013 16:57	115
8/1/2013 15:00	8/1/2013 18:00	180
8/8/2013 15:00	8/8/2013 18:00	180
8/9/2013 15:00	8/9/2013 18:01	182
8/12/2013 14:00	8/12/2013 18:00	240
8/13/2013 15:00	8/13/2013 17:40	160
8/22/2013 15:00	8/22/2013 18:00	180
8/23/2013 15:00	8/23/2013 15:59	60
8/27/2013 15:03	8/27/2013 18:00	177
8/28/2013 16:00	8/28/2013 16:56	56
8/29/2013 15:59	8/29/2013 17:00	61
9/3/2013 15:00	9/3/2013 16:00	60
9/8/2013 15:29	9/8/2013 15:39	11
9/9/2013 16:00	9/9/2013 17:00	60
9/25/2013 09:43	9/25/2013 09:57	14
9/25/2013 15:00	9/25/2013 15:27	27
10/30/2013 10:21	10/30/2013 10:37	15
11/6/2013 14:28	11/6/2013 14:49	20
11/13/2013 06:30	11/13/2013 07:02	32
11/14/2013 06:15	11/14/2013 08:00	105
12/10/2013 20:03	12/10/2013 20:12	9
1/7/2014 07:07	1/7/2014 07:54	46
1/7/2014 07:54	1/7/2014 09:21	87
1/8/2014 07:00	1/8/2014 08:00	60
1/9/2014 22:35	1/9/2014 22:45	10
1/13/2014 06:30	1/13/2014 08:30	120
1/18/2013 10:12	1/18/2014 10:20	8
1/22/2014 13:08	1/22/2014 13:40	32
1/22/2014 13:40	1/22/2014 13:58	18
1/24/2014 06:30	1/24/2014 08:30	120
1/28/2014 10:00	1/28/2014 10:40	40
1/29/2014 07:30	1/29/2014 09:32	122
1/30/2014 07:00	1/30/2014 09:04	124

2/7/2014 06:30	2/7/2014 08:30	121
2/14/2014 18:53	2/14/2014 19:21	27
2/27/2014 06:30	2/27/2014 08:30	120
3/4/2014 07:01	3/4/2014 07:59	58
3/14/2014 06:45	3/14/2014 08:06	81
3/26/2014 06:30	3/26/2014 08:00	90
3/27/2014 06:00	3/27/2014 08:00	120
5/1/2014 08:00	5/1/2014 10:02	122
5/7/2014 08:00	5/7/2014 10:01	121
5/13/2014 13:00	5/13/2014 15:00	120
5/22/2014 13:00	5/22/2014 15:00	120
6/5/2014 13:00	6/5/2014 15:00	120
6/10/2014 15:00	6/10/2014 18:00	180
6/17/2014 15:00	6/17/2014 18:00	180
6/19/2014 15:00	6/19/2014 17:06	126
6/26/2014 15:00	6/26/2014 16:08	68
7/2/2014 15:00	7/2/2014 18:00	180
7/9/2014 15:00	7/9/2014 16:03	63
7/14/2014 15:00	7/14/2014 18:00	180
7/16/2014 10:00	7/16/2014 11:00	60

Summary of Prospective Program Opportunities

DEP is continually seeking to enhance its DSM/EE portfolio by: (1) adding new or expanding existing programs to include additional measures, (2) program modifications to account for changing market conditions and new measurement and verification (M&V) results, and (3) other EE pilots. The following projects represent program enhancements that are being considered for possible implementation within the biennium for which this IRP is filed.

- Small Business Demand Response — Investigating the potential for a new demand response type of program targeted toward the small business market segment.
- Neighborhood Energy Saver Program -- DEP is reviewing various options for expanding its existing low-income energy efficiency program including but not limited to consideration for additional measures, broader reaching efforts, and additional delivery/implementation channels.
- Multi-Family – Investigating a potential expansion of DEC's Multi-Family Program to the DEP service area.
- K-12 Education – Investigating a potential expansion of DEC's K-12 Education Program to the DEP service area

- Residential Energy Benchmarking – Investigating a potential expansion of DEC's My Home Energy Report (MyHER) Program as a replacement for DEP's Residential Energy Efficient Benchmarking (REEB) Program.

EE and DSM Program Screening

The Company evaluates the costs and benefits of DSM and EE programs and measures by using the same data for both generation planning and DSM/EE program planning to ensure that demand-side resources are compared to supply side resources on a level playing field.

The analysis of energy efficiency and demand side management cost-effectiveness has traditionally focused primarily on the calculation of specific metrics, often referred to as the California Standard tests: Utility Cost Test (UCT), Rate Impact Measure (RIM) Test, Total Resource Cost (TRC) Test, and Participant Test (PCT).

- The UCT compares utility benefits (avoided costs) to the costs incurred by the utility to implement the program, and does not consider other benefits such as participant savings or societal impacts. This test compares the cost (to the utility) to implement the measures with the savings or avoided costs (to the utility) resulting from the change in magnitude and/or the pattern of electricity consumption caused by implementation of the program. Avoided costs are considered in the evaluation of cost-effectiveness based on the projected cost of power, including the projected cost of the utility's environmental compliance for known regulatory requirements. The cost-effectiveness analyses also incorporate avoided transmission and distribution costs, and load (line) losses.

- The RIM Test, or non-participants test, indicates if rates increase or decrease over the long-run as a result of implementing the program.

- The TRC Test compares the total benefits to the utility and to participants relative to the costs to the utility to implement the program along with the costs to the participant. The benefits to the utility are the same as those computed under the UCT. The benefits to the participant are the same as those computed under the Participant Test, however, customer incentives are considered to be a pass-through benefit to customers. As such, customer incentives or rebates are not included in the TRC.

- The Participant Test evaluates programs from the perspective of the program's participants. The benefits include reductions in utility bills, incentives paid by the utility and any state, federal or local tax benefits received.

The use of multiple tests can ensure the development of a reasonable set of cost-effective DSM and EE programs and indicate the likelihood that customers will participate.

Energy Efficiency and Demand-Side Management Program Forecasts

The Public Staff, in their comments on the 2013 IRP filing, Docker E-100, Sub137, made the following recommendations relative to EE/DSM analysis and forecasts:

9. *The IOUs should continue to monitor and report any changes of more than 10% in the energy and capacity savings derived from DSM / EE between successive IRPs, and evaluate and discuss any changes on a program specific basis. Any issues impacting program deployment should be thoroughly explained and quantified in future IRPs.*

10. *The IOUs should develop a consistent method of evaluating their DSM / EE portfolios and incorporate the savings in a manner that provides a clearer understanding of the year-by-year changes occurring in the portfolios and their impact on the load forecast and resource plan in future IRPs. The savings impacts should be represented on a net basis, taking into account any NTG impacts derived through EM&V processes.*

11. *DEP and DEC should specifically identify the values of DSM / EE portfolio capacity and energy savings separately in their load forecast tables and not embed these values in the system peak load or energy.*

12. *The IOUs should account for all of their DSM / EE program savings from programs approved pursuant to G.S. 62-133.9 and Commission Rule R8-68, regardless of when those measures were installed.*

13. *DEP and DEC should each adopt one methodology of evaluating the DSM / EE components of the IRP and remain consistent year-to-year. If an IOU determines that a change in methodology is required or appropriate, these changes should be thoroughly explained, justified, and reconciled to the savings projected in the previous IRP.*

In response to Recommendation Number 13 above, there were no significant changes in the EE forecast methodology for the 2014 IRP, however, the tables provided in the DEP IRP have been changed to the same format as those included in the DEC IRP to improve the ability to compare the two documents.

In early 2012, DEP commissioned a new energy efficiency market potential study to obtain new estimates of the technical, economic and achievable potential for EE savings within the DEP service area. The final report, “Progress Energy Carolinas: Electric Energy Efficiency Potential Assessment,” was prepared by Forefront Economics Inc. and H. Gil Peach and Associates, LLC and was completed on June 5, 2012. Achievable potential was derived using energy efficiency measure bundles and conceptual program designs to estimate participation, savings and program spending over a 20 year forecast period under a specific set of assumptions, which includes the significant effect of certain large commercial and industrial customers “opting-out” of the programs.

The study results are suitable for integrated resources planning purposes and use in long-range system planning models. The study is also expected to help inform utility program planners regarding the extent of EE opportunities and to provide broadly defined approaches for acquiring savings. It did not, however, attempt to closely forecast EE achievements in the short-

term or from year to year. Such an annual accounting is highly sensitive to the nature of the programs adopted, the timing of the introduction of those programs, and other factors. As a result, it was not designed to provide detailed specifications and works plans required for program implementation. This study provides part of the picture for planning EE programs. Fully implementable EE program plans are best developed considering this study along with the experience gained form currently running programs, input from DEP program managers and EE planners, and with the possible assistance of implementation contractors.

The tables below provide the base case projected load impacts from all DEP EE and DSM programs implemented since 2007 on a Gross and Net of Free Riders basis (responsive to Recommendation Number 10 above) and also includes impacts form programs implemented prior to SB-3. These load impacts were included in the base case IRP analysis. Note that some years may not sum to the total due to rounding. The Company assumes total EE savings will continue to grow on an annual basis throughout the planning period, however, the components of future programs are uncertain at his time and will be informed by the experience gained under the current plan. The projected MW load impacts from the DSM programs are based upon the Company's continuing, as well as new, DSM programs. Please note that, in response to Recommendation Number 12 above, these tables include a column that shows historical EE program savings since the inception of the EE programs through the end of 2013, which accounts for approximately an additional 1,143 GWh of Gross energy savings (815 Net GWh) and 222 MW of Gross annual peak demand savings (165 Net MW)[7].

Base Case Load Impacts of EE and DSM Programs - Gross Including Free Riders

	Annual MWh Load Reduction					Annual Peak MW Reduction				
	Including measures added in 2014 and beyond				Including measures added since 2007					
Year	Post SB-3	DSM	DSDR	Total		EE	DSM	DSDR	Pre SB-3 Programs	Total Annual
2007-13					1,142,871					
2014	225,214	3,174	55,969	284,357	1,427,227	21	255	311	283	870
2015	467,656	3,506	56,805	527,967	1,670,838	60	288	313	284	945
2016	724,195	3,806	57,580	785,581	1,928,452	101	323	314	287	1,025
2017	915,163	4,083	58,727	977,973	2,120,844	139	355	321	290	1,105
2018	1,135,353	4,336	59,844	1,199,533	2,342,403	173	382	328	293	1,176
2019	1,381,341	4,589	61,024	1,446,954	2,589,825	210	407	334	296	1,247
2020	1,644,724	4,811	62,221	1,711,756	2,854,627	252	409	340	297	1,298
2021	1,918,355	4,811	63,414	1,986,580	3,129,451	297	409	347	297	1,350
2022	2,185,183	4,811	64,614	2,254,608	3,397,479	342	409	353	297	1,401
2023	2,444,434	4,811	65,750	2,514,995	3,657,866	386	409	359	297	1,451
2024	2,695,143	4,811	66,930	2,766,884	3,909,755	428	410	366	297	1,501
2025	2,894,882	4,811	68,090	2,967,783	4,110,654	467	410	372	297	1,546
2026	3,074,232	4,811	69,222	3,148,265	4,291,136	499	410	378	297	1,584
2027	3,230,876	4,811	70,356	3,306,043	4,448,914	527	410	384	297	1,618
2028	3,362,169	4,811	71,509	3,438,489	4,581,360	549	410	391	297	1,647
2029	3,467,037	4,811	72,662	3,544,510	4,687,381	571	410	397	297	1,675

[7] Includes savings from DEP's 2007 CFL Pilot and 2009-11 Solar Water Heating Pilot Program.

Base Case Load Impacts of EE and DSM Programs - Net of Free Riders

	Annual MWh Load Reduction					Annual Peak MW Reduction				
	Including measures added in 2014 and beyond				Including measures added since 2007					
Year	Post SB-3	DSM	DSDR	Total		EE	DSM	DSDR	Pre SB-3 Programs	Total Annual
2007-13					814,514					
2014	168,207	3,174	55,969	227,350	1,041,863	16	255	311	283	865
2015	349,155	3,506	56,805	409,466	1,223,980	45	288	313	284	930
2016	540,671	3,806	57,580	602,057	1,416,571	75	323	314	287	999
2017	693,710	4,083	58,727	756,520	1,571,034	105	355	321	290	1,071
2018	867,899	4,336	59,844	932,079	1,746,593	132	382	328	293	1,135
2019	1,061,862	4,589	61,024	1,127,475	1,941,989	161	407	334	296	1,198
2020	1,268,621	4,811	62,221	1,335,653	2,150,167	194	409	340	297	1,240
2021	1,482,250	4,811	63,414	1,550,475	2,364,989	229	409	347	297	1,282
2022	1,689,034	4,811	64,614	1,758,459	2,572,972	264	409	353	297	1,323
2023	1,888,860	4,811	65,750	1,959,421	2,773,935	298	409	359	297	1,363
2024	2,080,948	4,811	66,930	2,152,689	2,967,202	330	410	366	297	1,403
2025	2,233,893	4,811	68,090	2,306,794	3,121,307	360	410	372	297	1,439
2026	2,370,957	4,811	69,222	2,444,990	3,259,504	385	410	378	297	1,470
2027	2,490,922	4,811	70,356	2,566,089	3,380,602	406	410	384	297	1,497
2028	2,591,975	4,811	71,509	2,668,295	3,482,809	423	410	391	297	1,521
2029	2,673,528	4,811	72,662	2,751,001	3,565,515	440	410	397	297	1,544

Pursuing EE and DSM initiatives is not expected to meet the growing demand for electricity. DEP still envisions the need to secure additional generation, as well as cost-effective renewable generation, but the EE and DSM programs offered by DEP will address a significant portion of this need if such programs perform as expected.

EE Savings Variance since last IRP

In response to Recommendation Number 9 from the Public Staff, the Base Case EE savings forecast of MW and MWh is within 10% of the forecast presented in the 2013 IRP when compared on the cumulative achievements at year 15 of the forecast.

High EE Savings Projection

DEP also prepared a high EE savings projection designed to meet the following Energy Efficiency Performance Targets for five years, as set forth in the December 8, 2011 Settlement Agreement between Environmental Defense Fund, the South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, and Duke Energy Corporation, Progress Energy, Inc., and their public utility subsidiaries Duke Energy Carolinas LLC and Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc.

- An annual savings target of 1% of the previous year's retail electricity sales beginning in 2015; and

- A cumulative savings target of 7% of retail electricity sales over the five-year time period of 2014-2018.

For the purposes of this IRP the high EE savings projection is being treated as a resource planning sensitivity that will also serve as an aspirational target for future EE plans and programs. The high EE savings projections are well beyond the level of savings attained by DEP in the past and much higher than the forecasted savings contained in the market potential study. The effort to meet them will require a substantial expansion of DEP's current Commission-approved EE portfolio. New programs and measures must be developed, approved by regulators, and implemented within the next few years. More importantly, significantly higher levels of customer participation must be generated. Additionally, flexibility will be required in operating existing programs in order to quickly adapt to changing market conditions, code and standard changes, consumer demands, and emerging technologies.
The tables below show the expected High Case savings treated as a sensitivity in this IRP on both a Gross and Net of Free Riders basis.

High Case Load Impacts of EE and DSM Programs - Gross Including Free Riders

	Annual MWh Load Reduction					Annual Peak MW Reduction				
	Including measures added in 2014 and beyond				Including measures added since 2007					
Year	Post SB-3 EE	DSM	DSDR	Total		EE	DSM	DSDR	Pre SB-3 Programs	Total Annual
2007-13					1,142,871					
2014	270,000	3,174	55,969	329,143	1,472,014	25	255	311	283	874
2015	730,691	3,506	56,805	791,002	1,933,873	86	288	313	284	971
2016	1,193,547	3,806	57,580	1,254,933	2,397,804	163	323	314	287	1,087
2017	1,659,265	4,083	58,727	1,722,075	2,864,945	241	355	321	290	1,207
2018	2,127,837	4,336	59,844	2,192,017	3,334,887	319	382	328	293	1,322
2019	2,599,487	4,589	61,024	2,665,100	3,807,970	395	407	334	296	1,432
2020	3,074,507	4,811	62,221	3,141,539	4,284,410	472	409	340	297	1,518
2021	3,552,279	4,811	63,414	3,620,504	4,763,375	552	409	347	297	1,605
2022	4,032,073	4,811	64,614	4,101,498	5,244,369	632	409	353	297	1,691
2023	4,514,109	4,811	65,750	4,584,670	5,727,541	712	409	359	297	1,777
2024	4,998,339	4,811	66,930	5,070,080	6,212,950	791	410	366	297	1,864
2025	5,484,750	4,811	68,090	5,557,651	6,700,522	875	410	372	297	1,954
2026	5,973,132	4,811	69,222	6,047,165	7,190,036	957	410	378	297	2,042
2027	6,463,374	4,811	70,356	6,538,541	7,681,412	1,039	410	384	297	2,130
2028	6,957,091	4,811	71,509	7,033,411	8,176,282	1,118	410	391	297	2,216
2029	7,454,639	4,811	72,662	7,532,112	8,674,983	1,205	410	397	297	2,309

High Case Load Impacts of EE and DSM Programs - Net of Free Riders

	Annual MWh Load Reduction					Annual Peak MW Reduction				
	Including measures added in 2014 and beyond				Including measures added since 2007					
Year	Post SB-3 EE	DSM	DSDR	Total		EE	DSM	DSDR	Pre SB-3 Programs	Total Annual Peak
2007-13					814,514					
2014	201,657	3,174	55,969	260,800	1,075,313	19	255	311	283	868
2015	545,539	3,506	56,805	605,850	1,420,363	64	288	313	284	949
2016	891,081	3,806	57,580	952,467	1,766,980	122	323	314	287	1,046

2017	1,257,753	4,083	58,727	1,320,563	2,135,077	183	355	321	290	1,149
2018	1,626,585	4,336	59,844	1,690,765	2,505,278	244	382	328	293	1,247
2019	1,998,273	4,589	61,024	2,063,886	2,878,400	304	407	334	296	1,341
2020	2,371,452	4,811	62,221	2,438,484	3,252,997	364	409	340	297	1,410
2021	2,744,730	4,811	63,414	2,812,955	3,627,469	427	409	347	297	1,480
2022	3,116,583	4,811	64,614	3,186,008	4,000,522	489	409	353	297	1,548
2023	3,488,137	4,811	65,750	3,558,698	4,373,212	550	409	359	297	1,615
2024	3,859,268	4,811	66,930	3,931,009	4,745,523	611	410	366	297	1,684
2025	4,232,415	4,811	68,090	4,305,316	5,119,830	675	410	372	297	1,754
2026	4,606,691	4,811	69,222	4,680,724	5,495,238	738	410	378	297	1,823
2027	4,983,093	4,811	70,356	5,058,260	5,872,774	801	410	384	297	1,892
2028	5,363,385	4,811	71,509	5,439,705	6,254,219	862	410	391	297	1,960
2029	5,748,479	4,811	72,662	5,825,952	6,640,466	929	410	397	297	2,033

At this time, there is too much uncertainty in the development of new technologies that will impact future programs and/or enhancements to existing programs, as well as in the ability to secure high levels of customer participation, to risk using the high EE savings projection in the base assumptions for developing the 2014 integrated resource plan. However, the high EE savings forecast was evaluated in two portfolios included in this IRP. DEP expects that as steps are made over time toward actually achieving higher levels of program participation and savings, then the EE savings forecast used for integrated resource planning purposes will continue to be revised in future IRP's to reflect the most realistic projection of EE savings.

Looking to the Future - Grid Modernization (Smart Grid Impacts)

Duke Energy is pursuing implementation of grid modernization throughout the enterprise with a vision of creating a sustainable energy future for our customers and our business by being a leader of innovative approaches that will modernize the grid.

Duke Energy Progress' Distribution System Demand Response (DSDR) program is an Integrated Volt-Var Control (IVVC) program that will better manage the application and operation of voltage regulators (the Volt) and capacitors (the VAR) on the Duke Energy Progress distribution system. In general, the project tends to optimize the operation of these devices, resulting in a "flattening" of the voltage profile across an entire circuit, starting at the substation and continuing out to the farthest endpoint on that circuit. This flattening of the voltage profile is accomplished by automating the substation level voltage regulation and capacitors, line capacitors and line voltage regulators while integrating them into a single control system. This control system continuously monitors and operates the voltage regulators and capacitors to maintain the desired "flat" voltage profile. Once the system is operating with a relatively flat voltage profile across an entire circuit, the resulting circuit voltage at the substation can then be operated at a lower overall level. Lowering the circuit voltage at the substation, results in an immediate reduction of system loading

The projected capability of DSDR is 236 incremental MW of voltage reduction, based upon the 2007 distribution system summer peak. The incremental 236 MW of peak demand reduction will be validated through system level analysis performed by the Distribution Management System ("DMS") during the 2014 summer peak season, with the results provided as part of the 2015 DSDR Evaluation, Measurement and Verification ("EM&V") report filing in June 2015. The incremental voltage reduction from the DSDR project does not include the previously available

75 MW of voltage reduction capabilities, which is added to the DSDR capabilities for the gross total.

Further detail regarding the total projected smart grid impacts associated with the DSDR program is provided in the following table, which presents a breakout of total DSDR peak demand and annual energy savings by source.

Program Savings by Source (at generator)

Year	Peak MW Demand Savings			MWh Energy Savings		
	Voltage Reduction	Reduced Line Losses	All Sources	Voltage Reduction	Reduced Line Losses	All Sources
2014	305	6	311	24,400	31,569	55,969
2015	307	6	313	24,523	32,281	56,805
2016	308	6	314	24,646	32,934	57,580
2017	315	6	321	25,160	33,566	58,727
2018	321	7	328	25,643	34,201	59,844
2019	327	7	334	26,154	34,870	61,024
2020	333	7	340	26,668	35,553	62,221
2021	340	7	347	27,184	36,231	63,414
2022	346	7	353	27,703	36,911	64,614
2023	352	7	359	28,159	37,591	65,750
2024	358	7	365	28,666	38,265	66,930
2025	365	7	372	29,164	38,926	68,090
2026	371	8	379	29,641	39,581	69,222
2027	377	8	385	30,125	40,231	70,356
2028	383	8	391	30,625	40,884	71,509

Discontinued Demand Side Management and Energy Efficiency Programs

Since the last biennial Resource Plan filing, DEP discontinued the following DSM/EE programs or measures.

- The Residential Home Advantage program – DEP received NCUC approval to close the program to new applications effective March 1, 2012 and cancel the program effective March 1, 2013 since it was determined that the program was no longer cost effective due to improved building energy codes as well as more stringent Energy Star® program requirements.

Rejected Demand Side Management and Energy Efficiency Programs

Since the last biennial Resource Plan filing, DEP has not rejected any cost-effective DSM/EE programs or measures.

Current and Anticipated Consumer Education Programs

In addition to the DSM/EE programs previously listed, DEP also has the following informational and educational programs.

- On Line Account Access
- "Lower My Bill" Toolkit
- Online Energy Saving Tips
- Energy Resource Center
- Large Account Management
- eSMART Kids Website
- Community Events

On Line Account Access

On Line Account Access provides energy analysis tools to assist customers in gaining a better understanding of their energy usage patterns and identifying opportunities to reduce energy consumption. The service allows customers to view their past 24 months of electric usage including the date the bill was mailed; number of days in the billing cycle; and daily temperature information. This program was initiated in 1999.

"Lower My Bill" Toolkit

This tool, implemented in 2004, provides on-line tips and specific steps to help customers reduce energy consumption and lower their utility bills. These range from relatively simple no-cost steps to more extensive actions involving insulation and heating and cooling equipment.

Online Energy Saving Tips

DEP has been providing tips on how to reduce home energy costs since approximately 1981. DEP's web site includes information on household energy wasters and how a few simple actions can increase efficiency. Topics include: Energy Efficient Heat Pumps, Mold, Insulation R-Values, Air Conditioning, Appliances and Pools, Attics and Roofing, Building/Additions, Ceiling Fans, Ducts, Fireplaces, Heating, Hot Water, Humidistats, Landscaping, Seasonal Tips, Solar Film, and Thermostats.

Energy Resource Center

In 2000, DEP began offering its large commercial, industrial, and governmental customers a wide array of tools and resources to use in managing their energy usage and reducing their electrical demand and overall energy costs. Through its Energy Resource Center, located on the DEP web site, DEP provides newsletters, online tools and information, which cover a variety of energy efficiency topics such as electric chiller operation, lighting system efficiency, compressed air systems, motor management, variable speed drives and conduct an energy audit.

Large Account Management

All DEP commercial, industrial, and governmental customers with an annual electric bill greater than $250,000 are assigned to a DEP Account Executive (AE). The AEs are available to personally assist customers in evaluating energy improvement opportunities and can bring in other internal resources to provide detailed analyses of energy system upgrades. The AEs provide their customers with a monthly electronic newsletter, which includes energy efficiency topics and tips. They also offer numerous educational opportunities in group settings to provide information about DEP's new DSM and EE program offerings and to help ensure the customers are aware of the latest energy improvement and system operational techniques.

e-SMART Kids Website

DEP is offering an educational online resource for teachers and students in our service area called e-SMART Kids. The web site educates students on energy efficiency, conservation, and renewable energy and offers interactive activities in the classroom. It is available on the web at http://progressenergy.e-smartonline.net/index.php.

Community Events

DEP representatives participated in community events across the service territory to educate customers about DEP's energy efficiency programs and rebates and to share practical energy saving tips. DEP energy experts attended events and forums to host informational tables and displays, and distributed handout materials directly encouraging customers to learn more about and sign up for approved DSM/EE energy saving programs.

Discontinued Consumer Education Programs

DEP discontinued the following educational programs since the last biennial Resource Plan filing.

- Customized Home Energy Report – A free tool that was used to educate residential customers about their household energy usage and how to save money by saving energy.

South Carolina Electric & Gas Company (SCE&G)

Demand Side Management (DSM) can be broadly defined as the set of actions that can be taken to influence the level and timing of the consumption of energy. There are two common subsets of Demand Side Management: Energy Efficiency and Load Management (also known as Demand Response). Energy Efficiency typically includes actions designed to increase efficiency by maintaining the same level of production or comfort, but using less energy input in an economically efficient way. Load Management typically includes actions specifically designed to encourage customers to reduce usage during peak times or shift that usage to other times.

Energy Efficiency

SCE&G‟s Energy Efficiency programs include Customer Information Programs, Web-Based Information and Services Programs, Energy Conservation and the Demand Side Management Programs. A description of each follows:

1. **Customer Information Programs:** SCE&G‟s customer information programs fall under two headings: the **Annual Energy Efficiency Campaigns** and **Web-based Information Initiatives**. The following is an overview of each.

Annual Energy Efficiency Campaigns

a. **Customer Insights and Analysis:** In 2013, SCE&G continued to proactively educate its customers and create awareness on issues related to energy efficiency and conservation. To help maximize the effectiveness of our campaigns, ongoing customer feedback is used to ensure marketing and communications efforts are consistent with what customers value most. Key insights gained through SCE&G‟s Brand Health Study and Voice of the Customer Panels are integrated to ensure we are communicating in a consistent manner that customers will understand.
As a result, SCE&G continues to highlight programs/services that reflect three main categories identified by our customers as offering the best opportunity to save energy and money. These areas include rebates and incentives, in-home services and education.

b. **Media/Channel Preferences:** Placement of all marketing and advertising is carefully reviewed, taking into consideration the customers‟ preferred methods of receiving information about SCE&G‟s energy efficiency programs and services. Priority channels include television (local news and select cable stations); online banner advertising, radio, electronic/print newsletters, direct mail, bill inserts and newspapers (major daily and weekly minority publications). SCE&G‟s statewide business office locations also serve as a distribution point for sharing information with customers. In addition, SCE&G has also incorporated social media, e.g. Twitter and Facebook, into its communications strategy. Key South Carolina markets covered, with all

marketing communications, include Columbia, Charleston, Aiken and Beaufort.

c. **Public Affairs/News Media/Speakers Bureau:** Furthermore, SCE&G understands the value of public affairs as an integral part of a well-rounded energy efficiency communication strategy and actively engages news media (broadcast and print) for coverage of key programs and services that will benefit our customers now and in the future. Public Affairs and Marketing staff also provide support with securing company experts to address a variety of organizations through a formal Speakers‟ Bureau, extending our outreach to church groups, senior citizen and low-income housing communities, civic organizations, builder groups and homeowner associations.

d. **Special Events:** Another key component to SCE&G‟s annual marketing initiatives include participation in a variety of events that offer the opportunity to further extend customer education and outreach of energy information. SCE&G‟s 2013 schedule included a solid mix of special events to include the Home Builders Association ("HBA") Home Improvement Show and Tour of Homes in Columbia and Black Expos in Columbia and Charleston.

e. **EnergyWise Communications:** Brand positioning of SCE&G‟s energy efficiency programs and services with all marketing and advertising initiatives falls under the EnergyWise umbrella – an SCE&G registered trademark in South Carolina and encompasses **general awareness education** as well as **program specific offerings**.

General Awareness Education: Last year's advertising included messaging on a wide range of topics such as year-round and seasonal energy efficiency tips that are practical for customers to manage on their own or that have a no-cost, low-cost factor to them. Examples include thermostat settings, checking air filters monthly, water heater settings and unplugging appliances that are sometimes perceived to be "energy vampires" (lights, TV's, computers, cell phone chargers, etc.). **Program Specific Offerings:** In 2013, SCE&G continued to heavily promote its portfolio of residential electric rebate/incentive programs under its Demand Side Management (DSM) department – many of which were featured in our general awareness advertising schedule. Specific programs included ENERGY STAR Lighting, our free Home Energy Check-up, Home Performance with ENERGY STAR and Residential Heating & Cooling and Water Heating Equipment.

2. **Web-Based Information and Services Programs:** SCE&G's online offerings can be broken into four components: Customer Awareness Information, the Energy Analyzer, free online Energy Audit and EnergyWise e-newsletter. Altogether, there have been more than 5.1 million visits to SCE&G's website in 2013. Customers must be registered to use the interactive tools Energy Analyzer and Energy Audit. There are over 350,000 customers registered for this access. Descriptions of the four categories listed above follows:

   a. **Customer Awareness Information:** The SCE&G website, www.sceg.com, supports all communication efforts to promote energy savings information –

both general awareness tips and program-specific overviews, tools and resources – all through a section called “Be EnergyWise and Save”. Energy savings information includes detailed information on each of the Demand Side Management programs for residential and commercial/industrial customers, as well as how-to videos on insulation, thermostats and door and windows.

b. **Energy Analyzer:** The Energy Analyzer, in use since 2004, is a 24-month bill analysis tool. It uses complex analytics to identify a customer's seasonal usages and target the best ways to reduce demand. This Web-based tool allows customers to access their current and historical consumption data and compare their energy usage month-to-month and year-to-year -- noting trends, temperature impact and spikes in their consumption. There were a little over 106,000 visits to the Energy Analyzer tool in 2013.

c. **Online Energy Audit:** The Online Energy Audit tool leads customers through the process of creating a complete inventory of their home's insulation and appliance efficiency. The tool allows customers to see the energy and financial savings of upgrades before making an investment. Over 7,000 customers used the Energy Audit tool in 2013.

d. **SCE&G EnergyWise E-Newsletter:** SCE&G's web-based information and services included ongoing management of its EnergyWise e-newsletter to support customer demand for additional information on ways to help them save energy. A total of 2,464 customers are registered for the e-newsletters distributed in 2013.

3. Energy Conservation

Energy conservation is a term that has been used interchangeably with energy efficiency. However, energy conservation has the connotation of using less energy in order to save rather than using less energy to perform the same or better function more efficiently. The following is an overview of each SCE&G energy conservation offering:

a. **Energy Saver / Conservation Rate**: The Rate 6 (Energy Saver/Conservation) rewards homeowners and homebuilders who upgrade their existing homes or build their new homes to a high level of energy efficiency with a reduced electric rate. This reduced rate, combined with a significant reduction in energy usage, provides for considerable savings for our customers. Participation in the program is very easy as the requirements are prescriptive which is beneficial to all of our customers and trade allies. Homes built to this standard have improved comfort levels and increased resale value over homes built to the minimum building code standard, which is also a significant benefit to participants. Information on this program is available on our website and by brochure.

b. **Seasonal Rates**: Many of our rates are designed with components that vary by season. Energy provided in the peak usage season is charged a premium to encourage conservation and efficient use.

4. Demand Side Management Programs

In 2013, SCE&G completed a comprehensive evaluation of the existing DSM programs with the specific intention of updating programs and introducing new programs to the DSM portfolio. In May 2013, the Company presented the new portfolio to the Commission and received approval in November 2013. The Commission approved a suite of eleven (11) DSM programs, which includes nine programs targeting SCE&G's residential customer classes and two programs targeting SCE&G's commercial and industrial customer classes. A description of each program follows:

a. **Residential Home Energy Reports** provides customers with free monthly/bimonthly reports comparing their energy usage to a peer group and providing information to help identify, analyze and act upon potential energy efficiency measures and behaviors.

b. **Residential Energy Information Display** provides customers with an in-home display that shows information from the customer's meter regarding current energy usage and cost, and the approximate use and cost to date for the month. The displays were distributed to targeted customers, upon their request, at a discounted price.

c. **Residential Home Energy Check-up** program provides customers with a visual energy assessment performed by SCE&G staff at the customer's home. At the completion of the visit, customers are offered an energy efficiency kit containing simple measures, such as compact fluorescent light bulbs ("CFL"), water heater wraps and/or pipe insulation. The Home Energy Check-up is provided free of charge to all residential customers who elect to participate.

d. **Residential Home Performance with ENERGY STAR®** program promotes a comprehensive energy efficiency audit of the home by trained contractors. SCE&G provides incentives to customers for implementing specific measures based on the audit findings.

e. **Residential ENERGY STAR® Lighting** program incentivizes residential customers to purchase and install high-efficiency ENERGY STAR® qualified lighting products by providing discounts to the manufacturers and retailers.

f. **Residential Heating & Cooling and Water Heating Equipment** program provides incentives to customers for purchasing and installing high efficiency HVAC equipment and non-electric resistance water heaters in new and existing homes.

g. **Residential Heating & Cooling Efficiency Improvements** program provides residential customers with incentives to improve the efficiency of existing AC and heat pump systems through HVAC tune-ups (system optimizer), complete duct

replacements, duct insulation and duct sealing. The system optimizer was discontinued in May 2013.

h. **Residential ENERGY STAR® New Homes** program provides incentives to customers and builders who are willing to commit to ENERGY STAR® standards in new home construction.

i. **Neighborhood Energy Efficiency Program (NEEP)**, approved by the Commission in April 2013, provides qualifying customers energy education, an on-site energy survey of the dwelling, and direct installation of low-cost energy saving measures at no additional cost to the customer. The program is delivered in a neighborhood door-to-door sweep approach and offers customers who are eligible and wish to participate a variety of direct installation energy efficiency measures.

j. **Commercial and Industrial Prescriptive** program provides incentives to non-residential customers to invest in high-efficiency lighting and fixtures, high efficiency motors and other equipment. To ensure simplicity, the program includes a master list of measures and incentive levels that are easily accessible to commercial and industrial customers on the website.

k. **Commercial and Industrial Custom** program provides custom incentives to commercial and industrial customers based on the calculated efficiency benefits of their particular energy efficiency plans or construction proposals. This program applies to technologies and applications that are more complex and customer-specific. All aspects of this program fit within the parameters of both retrofit and new construction projects.

5. Load Management Programs

The primary goal of SCE&G‟s load management programs is to reduce the need for additional generating capacity. There are four load management programs: Standby Generator Program, Interruptible Load Program, Real Time Pricing Rate and the Time of Use Rates. A description of each follows:

a. **Standby Generator Program:** The Standby Generator Program for wholesale customers provides about 25 megawatts of peaking capacity that can be called upon when reserve capacity is low on the system. This capacity is owned by our wholesale customers and through a contractual arrangement is made available to SCE&G dispatchers. SCE&G has a retail version of its standby generator program in which SCE&G can call on 20 or more customers to run their emergency generators. This retail program provides about 17 MWs of additional capacity as needed.

b. **Interruptible Load Program:** SCE&G has over 150 megawatts of interruptible customer load under contract. Participating customers receive a discount on their demand charges for shedding load when SCE&G is short of capacity.

c. **Real Time Pricing ("RTP") Rate:** A number of customers receive power under our real time pricing rate. During peak usage periods throughout the year when capacity is low in the market, the RTP program sends a high price signal to participating customers which encourages conservation and load shifting. Of course during low usage periods, prices are lower.

d. **Time of Use Rates:** Our time of use rates contain higher charges during the peak usage periods of the day and lower charges during off-peak periods. This encourages customers to conserve energy during peak periods and to shift energy consumption to off-peak periods. All SCE&G customers have the option of purchasing electricity under a time of use rate.

SCE&G"s resource plan shows the need for additional capacity in the future to continue providing reliable electric service to its customers. As SCE&G evaluates how to satisfy this need, the Company will consider, among other things, demand response technologies.

Municipal Electric Utilities

City of Abbeville

On Line "Energy Depot" Toolkit: Abbeville Public Utilities offers customers Energy Depot®, which is a set of online tools and resources to help them better understand and manage their home energy use and costs. Energy Depot is a free resource for energy information. They can use Energy Depot to:

- Receive a personalized energy profile with an estimate of their energy costs for each home energy system/appliance group
- Learn specific things they can do to reduce energy use and how much they can save
- Complete a do-it-yourself home energy audit and receive a report online
- Quickly estimate the annual energy use and cost of home energy systems and appliances
- Compare heating and cooling systems or water heater to a range of new systems
- Learn how soon they can pay for a new more efficient heating or cooling system or water heater through lower energy bills
- Use the Energy Library to answer energy questions
- Get answers to the most frequently asked questions regarding home energy use

Booklet ("Energy Matters in Your Home"): This guidebook is produced by the American Public Power Association and is designed to give residential customers practical, energy-saving advice. Along with top tips for saving energy, the booklet highlights key areas including home weatherization, heating and cooling, lighting and appliances. "Energy Matters in Your Home" also contains references to other resources that customers can access to obtain additional information. It is available in our lobby or mailed to customers upon request.

Home Energy Review: Upon request from our customers, local staff examines both the interior and exterior of the home with the customer to look for obvious but often overlooked ways to reduce energy consumption. We take digital and thermal photos of the home then provide a written report to the customer with energy saving suggestions.

Peak Shaving: The City of Abbeville currently has approximately 3 MW of peak shaving capacity. This is in the form of two hydro generators and one diesel generator units at our Rocky River generating facility. The units are operated in accordance with our wholesale energy supplier's (PMPA) call for load control. Typically this occurs during the months of June, July, and August.

City of Bennettsville

The City of Bennettsville purchases power exclusively from a Central Electric Cooperative distribution cooperative, Marlboro Electric (MECO). We occasionally participate with MECO on local activities but we have no additional DSM activity.

City of Camden

The City of Camden Electric Department has purchased and implemented a SCADA system (Supervisory Control and Data Acquisition) to perform demand side management. The SCADA system replaces a radio based load management system and reduces peak demands through voltage reduction at their substations. With the SCADA system implemented, Camden has the ability reduce peak loading by approximately 5%.

City of Clinton

The City of Clinton is in the initial phases of implementing a DSM program using fiber/radio controlled switches on pools and air conditioners.

Greer Commission of Public Works[8]

The Greer Commission of Public Works ("Greer CPW") offers energy saving tips to our customers that will promote energy efficiency and conservation on our website, www.greercpw.com. The website includes a section for energy saving tips, water efficiency and conservation, and a set of online tools and resources, called the Energy Depot, which allows the customer to better understand and manage energy cost within their home or business.

Greer CPW offers in-house energy audits provided by trained Greer CPW staff. The staff will conduct an inspection of the home, which includes thermal imaging, and make recommendations for changes to help with energy efficiency.

Greer CPW offers time-of-use rates to a select group of commercial customers that meet the requirements for this rate. This helps to promote off-peak energy use.

Greer CPW also conducts energy reduction during peak times to reduce the electrical demand from our customers by using peak shaving equipment, such as diesel generators.

Laurens Commission of Public Works

The Laurens CPW is planning a demand-side management pilot program for residential and qualifying commercial customers. An energy efficiency rate will be offered to incentivize the controlling of air conditioning and pool pumps.

[8] SCEO did not receive a 2013 DSM narrative from the Greer Commission of Public Works. This narrative represents its 2012 program offerings.

City of Rock Hill

Conservation

The City of Rock Hill ("City") is currently involved in an Automated Metering Infrastructure (AMI) Pilot project. Over 7,000 new solid-state electric meters have been installed. As part of this project, the City is evaluating Meter Data Management Systems (MDMS). These systems would provide an opportunity for utilization of the collected data and on-line customer access to load profile data & real-time data to monitor & control their power consumption & peak demands.

Energy Efficiency

The City has developed its Smart Choice program to encourage energy efficiency for our residential customers. This program provides either rebates for installation of high efficiency heat-pumps & water heaters or low-interest financing. Customers participating in the Smart Choice program are also available for the City's lowest cost residential electric rate schedule. The City participates in the York County Green Business Conference, York County Earthday Birthday, and City of Rock Hill Operation Center Open House offering free CFLs, low-flow showerheads, and weather stripping, along with brochures providing energy efficiency ideas & suggestions for homes or businesses, to all interested participants.

Load Management

The City operates an annual Load Management program through three defined programs:

- Load Control Devices on Residential A/C and Electric Water Heaters (2,150 units)
- Operation of Standby Generation during select periods (15 MW)
- Voltage Reduction
- Net Metering (4 Residential & 1 Commercial)

The City also offers our commercial & industrial customers, who can shed 100 kW or more during requested times, credits for the kW reduction. In 2012, the City was able to reduce its annual peak demand by an estimated 7.1%

City of Union

The City of Union has three (3) substations and through voltage reduction shaves peak by lowering the voltage from 124.6 volts to 118.9 volts during high demands.

City of Westminster

The City of Westminster is relatively small which accounts for the City having very little in the way of Demand-Side Management (DSM) activities. The Utilities Department of the City does

offer an interruptible electric rate but currently does not have any customers on this particular rate. The one customer that was previously on this rate is a lumber mill and, due to the economy, is no longer in operation. When operating, that customer would receive a billing benefit in exchange for not operating during times of load management. Our times of load management occur when our provider, PMPA, indicates the system is nearing peak electrical usage.

Other than the occasional offering of tips for conservation whenever a customer should ask, the City does not have any other formal DSM activities.

State-Owned Electric Utility

Santee Cooper

Residential Programs

Smart Energy Existing Homes Program

The Smart Energy Existing Homes Program offers home energy evaluations, incentive rebates and financial assistance for residential energy efficiency improvements that are designed to improve the energy efficiency of customers' homes year-round.

Santee Cooper provides rebates and low-interest financing for qualifying energy efficiency improvements. In 2013, there were 875 customers who participated in rebates for a savings of 1,160 MWh. The total incentive cost was $172,770.

Measure	Customers	Incentive
Air Infiltration	**21**	**$15 - $263**
Ceiling Insulation	**35**	**$84 - $378**
Duct Improvement	**32**	**$75 - $4155**
Heat Pump Install	**354**	**$70 - $920**
Heat Pump Tune Up	**575**	**$50**
Nest Thermostat	**14**	**$125**
Heat Pump Water Heater	**14**	**$400**
Solar Water Heater	**2**	**$700**

Refrigerator Rebate Program

The Refrigerator Rebate Program offers customers rebates for the purchase and installation of ENERGY STAR® refrigerators between 10-30 cubic feet in size. It also offers customers rebates for surrendering their older, inefficient units within the same size range to be recycled by Santee Cooper's recycling contractor. These rebates are intended to reduce the customers' incremental cost of upgrading to higher efficiency appliances, as well as, get the less efficient refrigerators off the grid.

Rebates include:

- $50 Rebate for the recycling a working pre-1993 refrigerator.
- $40 Rebate toward the purchase of a new ENERGY STAR® refrigerator.

Program participation in 2013 resulted in 46 old refrigerators being recycled and 28 new ENERGY STAR refrigerators being purchased with an estimated annual energy savings of 30

MWh. Total rebates incurred through Santee Cooper in 2013 were $3,420. The Refrigerator Rebate program was discontinued after the 2013 program year.

Smart Energy New Homes Program

The Smart Energy New Home Program, which began on November 1, 2009, is comprised of two tiers of energy efficiency standards:

- ENERGY STAR® New Home performance standards require that homes be 15% more efficient than the requirements in 2006 International Energy Efficiency Code (IECC). The rebate for this tier is $1,600 for single family (SF) homes and $1,000 per unit for multi-family (MF) homes.
- Smart Energy New Home performance standards require that homes be 10% more efficient than the requirements of 2006 IEEC. This tier's rebate is $1,000 for SF homes and $600 per unit for MF homes.

Both types of new home rebates are payable to the homebuilder. There were 7 SF new homes built that qualified as ENERGY STAR® homes for a savings of 18 MWh. There were 48 MF new homes built that qualified as Smart Energy homes for a savings of 145 MWh. The total combined incentive cost was $40,000.

On-site Energy Assessments

Santee Cooper offers free energy assessments to residential customers upon request.

Equipment and Lighting Incentives: Residential CFL's

CFLs can save about $30 or more each in electricity costs over each bulb's lifetime. The Residential CFL program gave out 38,124 bulbs to 3,178 customers saving 1,087 MWh in 2013. The incentive cost was $1.45 per CFL for a total CFL cost of $55,280.

Commercial Programs

Commercial Prescriptive Program

Projects with qualify lighting, HVAC, building envelope, or refrigeration components are eligible for rebates under the Commercial Prescriptive Program. There were 269 participating projects in 2013 for a savings of 10,818 MWh. These savings come from several different measures that are implemented as an individual project or in combination with other measures. The total combined incentive cost was $759,665.

Commercial Custom Program

Custom rebates are tailored specifically to provide unique energy saving initiatives on a business-by-business basis. The rebate is $0.10 for every kWh saved during first-year, not to exceed 50% of the qualifying measure's incremental cost. Customers are subject to a maximum rebate of $200,000 per facility per calendar year and an overall rebate cap of $300,000 per facility, per calendar year for participation in multiple energy efficiency programs offered by Santee Cooper. For the purposes of Santee Cooper's energy efficiency programs, a customer facility is defined as one or several adjacent buildings owned or operated by a single customer. In 2013, there were 46 customers who participated with a combined savings of 3,443 MWh. The combined incentive cost was $240,089.

Commercial Direct Install Lighting Program
Santee Cooper's Direct Install Program covers up to 65% of the installation cost of qualifying lighting upgrades for small businesses. In 2013, there were 327 customers who participated for a savings of 2,371 MWh. The combined incentive cost was $701,186.

On-site Energy Assessments
Santee Cooper offers free energy assessments to commercial customers upon request.

Commercial CFL's
Commercial CFL's are classified as either High Use or Low Use based on the number of hours they are used in an average week. There were 15,972 High Use bulbs given to 192 customers saving 3,785 MWh and 9,238 Low Use bulbs given to 91 customers saving 480 MWh. The total incentive cost for Commercial CFL's was $36,555.

Load Management

Load Control Incentives
N/A

Interruptible Service Incentives
Santee Cooper does not offer any interruptible service incentives, but the GL rate is designed with an interruptible service clause.

Time-of-Use or Seasonal Rates
Santee Cooper offers time-of-use rates for commercial and residential respectively for the following rates: GT & RT. The GV rate is a seasonal rate for commercial customers.

Standby Generation Incentives
Santee Cooper does not offer an incentive, but does offer a standby generator lease program.

Thermal Energy Storage
Thermal Energy Storage was discontinued in August, 2011.

Voltage Reduction
N/A

Public Information

Web-Based Customer Tips & Tools
Santee Cooper offers online energy saving tips for residential and commercial customers. EnergyEarth is a company that offers free online energy audits and energy efficiency products. In 2013, we teamed up with EnergyEarth to offer a pilot program to employees. The online, personalized energy audit helps customers identify places to be more energy efficient in their homes, which can reduce energy consumption and lower utility bills. The process is easy, progress and results can be saved, and when the audit is finished, suggested products that can

help lower energy use are made available for customers to purchase. There is no purchase required to complete the audit and get personalized energy-saving tips.

Direct-to-Customer Communications and Public Campaigns

- **Direct-to-customer** Santee Cooper communicates directly to customers to support all of our energy-efficiency, conservation and DSM activities and programs. Our monthly bill inserts highlight new programs and include clear, measurable calls to action. We also utilize direct mail promotions and communication, and email customers through our opt-in program with monthly information and links to sign up or have questions answered. In 2013, the opt-in email program included more than 48,000 customers, and our direct mail numbers vary according to the target audience for each specific program. We also communicate to customers through Facebook, Twitter and YouTube. We have more than 1,900 followers on Twitter which saw steady growth in 2013, while Facebook with more than 38,800 fans and YouTube videos were viewed more than 74,000 times, which equals a substantial growth.

- **Public Campaigns** Santee Cooper continues to use advertising and communications vehicles that target specific customers and customer groups. We advertise and promote our programs through digital advertising on the web and through Facebook, which is highly measurable and lets us know who we are reaching and how they are responding. We analyze and measure performance of communications, allowing us to quickly adjust promotions to achieve better results with our customers and other public stakeholders. We also promote programs through press releases and press conferences, if warranted, to round out our public communications. In addition, we are partnering with customers who can help spread the word, such as large property managers who help us include energy efficiency promotions to their property owners.

  School Programs & Resources Through educational initiatives Santee Cooper has established a strong, collaborative network with school districts in the state to provide educators and students with a real-world understanding of the power and purpose of electricity as well as the importance of conserving and using that power efficiently. Through our business and education partnerships Santee Cooper is continually supporting the needs of students, teachers and parents. The following describes the programs in place for ongoing community education and involvement in the energy efficiency and conservation aspects of Santee Cooper's operations.

- **Energy Educators Institute** Each summer Santee Cooper sponsors the Energy Educators Institute, a graduate level course for certified South Carolina K-12 teachers and administrators. Ninety educators explore the scientific concepts of energy, its sources, use and impact on the environment, economy and society. Since 1988 over 1,875 South Carolina educators have attended the Institute and have received relevant curriculum based materials to enhance their teaching in areas such as energy efficiency and conservation.

- **Educational Publications** Approximately 25,000 curriculum-based environmental/energy conservation publications (K-12) are sent to teachers in the state each year. These publications educate teachers and students about environmental

issues such as the importance of Reduce, Reuse, and Recycle, how renewable resources can play a part in the generation of power as well as the need to develop life-long practices to conserve energy wisely.

- **Solar Schools' Project/Conservation of Energy Curriculum** Santee Cooper's Solar Schools Initiative in 2007 lead to the development of the Conservation of Energy science curriculum kit now being taught to all sixth grade students in 29 middle schools in South Carolina. Teachers are trained each summer (120 to date) on the Conservation of Energy curriculum equipping them with the scientific knowledge needed to understand the opportunities and limitations associated with renewable power sources as well as the need for societies to develop life styles that embrace the efficient use of energy.

- **E-SMART Kids** This interactive website is a tool to inspire teachers, students and parents to be "green." The intent of the website is to bring awareness and understanding about the need to be energy efficient and the steps each individual can take to prevent energy waste. Also available on this site is a link for teachers and parents to learn how Santee Cooper's "green initiatives" can help make homes, schools and businesses operate in a more energy efficient manner.
- **Environmental Bookmarks.** Santee Cooper's energy conservation message is also delivered through the distribution of bookmarks, **Live the Good Life** and **Make an Impact,** (over 45,000 through 2013) at educational and community venues, such as career day events, classroom presentations and environmental fairs. The "green" tips shared on the bookmarks are a daily reminder to students, parents and community members on the actions they can take every day to use energy more wisely.

South Carolina Natural Gas Utilities—Summary

Of the 15 natural gas utilities in South Carolina, 8 had ongoing DSM activity in 2013. Their ongoing DSM activity consisted of:

Energy Efficiency and Conservation

- One natural gas utility provided payments to builders to promote energy efficient new construction.
- Two natural gas utilities offered on-site energy assessments to customers, providing trained personnel to evaluate facilities and suggest methods for improving energy efficiency.
- One natural gas utility implemented an energy efficiency and weatherization program targeting low-income customers, providing personalized assessments and home improvements to enable these customers to lower their monthly natural gas bill.
- Five natural gas utilities offered financial incentives (such as rebates or discounts) for the purchase and/or installation of newer, more efficient natural gas appliances or equipment.

Load Management

- Two natural gas utilities offered financial incentives (such as bill credits or lower rates) to customers that volunteered to allow utilities to cut off or reduce their natural gas deliveries during periods of peak demand. (Interruptible customers are typically commercial or industrial entities that have the ability to instantaneously switch from utility natural gas to another energy source or are willing to suspend operations during fuel curtailment periods.)

Public Information

- Three natural gas utilities maintained websites that offered energy efficiency and conservation tips and/or web-based tools for viewing and analyzing monthly natural gas usage and cost.
- Two natural gas utilities communicated directly with customers through mailings and/or in-person assistance to publicize utility DSM programs and offer energy efficiency and conservation tips and services.
- One natural gas utility conducted public outreach campaigns through advertising and presence at community events to publicize utility DSM programs and offer energy efficiency and conservation tips.

Natural gas utilities submitted narrative descriptions of their 2013 DSM activity in response to SCEO requests for information. *The following descriptions are presented as submitted by each utility, with the exception of minor edits performed to ensure relevance to the scope of this report and consistency with its format.*

Chester County Natural Gas Authority

Chester County Natural Gas Authority's view on Demand-Side Management is customer-focused. If we are able to reduce customers' net energy usage (including electricity), with natural gas, then we provide economic development and net demand reduction to that customer. A customer will then have more disposal income because his or her total energy usage has been reduced.

Demand-Side Management for natural gas utilities is based on the increased efficiency of new natural gas appliances which reduces demand on the gas system.

The Chester County Natural Gas Authority employs the following Demand–Side Programs:

1. Appliance Program: Allow customer to purchase natural gas appliances from Chester County Natural Gas Authority (new appliances are much more efficient than older appliances). This results in savings for the customer and acts as Demand-Side Management for Chester County Natural Gas because of the reduction in gas consumption.

2. Natural gas tank-less water heater: Provide credit for and sell natural gas tank-less water heater to customers, which is more efficient than natural gas tank water heaters. Savings = $50.00 per year. This results in savings for the customer and acts as Demand-Side Management for Chester County Natural Gas because of the reduction in gas consumption.

Clinton-Newberry Natural Gas Authority

Clinton-Newberry Natural Gas Authority (CNNGA) is promoting energy efficient natural gas tank-less water heaters to all of the customers served by CNNGA by issuing a rebate of $100 to replace a regular tanked natural gas water heater or any electric water heater. In 2012 CNNGA replaced 114 tanked natural gas water heaters and electric water heaters with natural gas tank-less water heaters. The energy consumed by the energy efficient natural gas tank-less water heater is about half the energy consumed by a standard tank natural gas water heater.

In 2013 CNNGA continued the rebate program on natural gas tank-less water heaters and replaced 106 electric or tanked natural gas water heaters. The tank-less consumes energy only on demand so no energy is wasted in keeping a tank of water heated.

Fort Hill Natural Gas Authority[9]

Our demand-side management activities for 2012 included interruptible sales contracts for our larger customer accounts and rebates for customers switching to certain new natural gas appliances.

[9] SCEO did not receive a 2013 DSM narrative from Fort Hill Natural Gas Authority. This narrative represents its 2012 program offerings.

Greer Commission of Public Works

Greer CPW's DSM programs did not specifically target natural gas usage, some of their programs—particularly energy audits and public information activities—had the effect of encouraging natural gas efficiency, conservation, and/or reduction of peak natural gas demand.

Orangeburg Department of Public Utilities

The Orangeburg Department of Public Utilities (ODPU) has a rebate program that includes rebates for tankless water heaters and high efficiency heaters. The ODPU offers favorable rates for interruptible customers.

Piedmont Natural Gas Company

Piedmont Natural Gas ("Piedmont") administers the following Energy Efficiency programs to customers in our South Carolina service territory:

- **Customer Education Program** – a targeted marketing approach within Piedmont's South Carolina service territory to provide customer energy education, efficiency and conservation messages.
- **Low-Income Energy Efficiency Program** – provides energy efficiency measures and weatherization assistance to existing low-income residential customers.
- **High-Efficiency Equipment Rebate Program** – provides rebates to Piedmont's residential and commercial customers who purchase and install qualifying high-efficiency natural gas equipment to replace existing natural gas equipment.

Customer Education Program

This program funds a communications campaign focusing on customer energy education, efficiency and conservation messages. Piedmont communicates these messages to customers through various means such as bill inserts, other print advertisements, and/or other available media. Piedmont also encourages customers to take advantage of potential tax credits and other incentives available for installing high-efficiency natural gas equipment, such as for water heating and space heating. Some of the energy efficiency themes used in this campaign are based on the following:

- How saving energy also saves customers money
- How to save energy through equipment and system high-efficiency upgrades
- Education on what makes high-efficiency natural gas equipment more efficient

- Energy saving tips and simple steps for residential customers to save energy at home

- How to save energy through behavioral changes

Although not funded through EE program funds, Piedmont offers energy efficiency and conservation tips on our website. We also provide customers with web-based tools for viewing and analyzing their monthly natural gas usage and costs.

Residential Low-Income Energy Efficiency Program

The primary purpose of this program is to provide energy efficiency measures and weatherization assistance, through a third-party, to low-income residential customers in Piedmont's service territory. The program helps to create a more energy efficient and comfortable home environment for the customers served. In addition to the actual energy savings, there can be additional benefits to the low-income customer including improved health and safety conditions, and increased comfort for residents.

The target population for this program is low-income customers dwelling in single-family homes that are served under Piedmont's residential rate schedules. Where applicable, priority is placed on providing assistance to those eligible elderly individuals with disabilities and/or eligible families with children. There is no direct charge to the participating low-income customers for the services provided. Program funds are primarily used to pay a third-party energy organization to administer the program.

The primary energy efficiency measures provided to each program participant are based on a comprehensive in-home energy audit. The measures offered and performed to each program participant may include:

- Sealing major air leaks in floors and ceilings (penetrations, bypasses, chases)

- Insulating attic, side wall, and/or floors

- Sealing and insulating ducts

- Installing programmable/setback thermostat

- Evaluating, cleaning and tuning heating systems

- Installing general heat waste measures (furnace filters, water heater insulation wrap, piping insulation, water-saving devices, and weather-stripping)

High Efficiency Equipment Rebate Program

This program provides rebates to Piedmont's residential and commercial customers who purchase and install qualifying high efficiency natural gas equipment. The residential rebates are limited to high efficiency water and space heating equipment only, since water heating and space heating constitutes a large portion of residential energy usage. Commercial customers

are offered a rebate to purchase and install a high efficiency water heater. This program enables customers to help offset some of the higher cost of choosing a more efficient piece of equipment. An upgrade to a higher efficiency water heater or furnace, given consistent usage patterns, can help the program participant achieve recognizable energy savings.

The following summarizes the equipment rebates that are offered and the corresponding equipment efficiency requirements.

Residential Equipment Rebate Summary

	Rebate Amount	Minimum Required Efficiency[10]
Natural Gas Storage Tank Water Heater	$ 50	EF = 0.62 (or greater)
Natural Gas Tankless Water Heater	$ 250	EF = 0.82 (or greater)
Natural Gas Forced Air Furnace	$ 300	AFUE = 90% (or greater)

Commercial Equipment Rebate Summary

	Rebate Amount	Minimum Required Efficiency[11]
Natural Gas Tankless Water Heater	$ 250	EF = 0.82 (or greater)

Each customer is required to submit a rebate application, along with proof of purchase and installation of the qualifying equipment. Upon approval of the application, the rebate is mailed as a check to the customer. In addition to the rebate check, each customer that installed qualified equipment under the program receives an energy efficiency kit that includes items to help the customer further reduce their natural gas energy usage.

South Carolina Electric & Gas Company (SCE&G)

SCE&G's DSM programs did not specifically target natural gas usage; many of their programs—particularly efficient new home incentives, energy assessments, and public information activities—had the effect of encouraging natural gas efficiency, conservation, and/or reduction of peak demand within their combined gas-electric service area.

[10] *[Piedmont Natural Gas Company note:]* EF is the Energy Factor; AFUE is the Annual Fuel Utilization Efficiency
[11] *[Piedmont Natural Gas Company note:]* EF is the Energy Factor

York County Natural Gas

The following link directs to our residential appliance rebate program (www.getgassc.com). This is a secondary website we maintain to educate our residential customers on energy efficiency and conservation.

Appendix A
South Carolina State Statute Authorizing DSM Report

South Carolina Code of Laws, Section 58-37-30:
Reports on demand-side activities of gas and electric utilities; forms.

(A) The South Carolina Public Service Commission must report annually to the General Assembly on available data regarding the past, on-going, and projected status of demand-side activities and purchase of power from qualifying facilities, as defined in the Public Utilities Regulatory Policies Act of 1978, by electrical utilities and public utilities providing gas services subject to the jurisdiction of the Public Service Commission.

(B) Electric Cooperatives providing resale or retail services, municipally-owned electric utilities, and the South Carolina Public Service Authority shall report annually to the State Energy Office on available data regarding the past, on-going, and projected status of demand-side activities and purchase of power from qualifying facilities. For electric cooperatives, submission to the State Energy Office of a report on demand-side activities in a format complying with the current Rural Electrification Administration regulations constitutes compliance with this subsection. An electric cooperative providing resale services may submit a report in conjunction with and on behalf of any electric cooperative which purchases electric power and energy from it. The State Energy Office must compile and submit this information annually to the General Assembly.

(C) The State Energy Office may provide forms for the reports required by this section to the Public Service Commission and to electric cooperatives, municipally-owned electric utilities, and the South Carolina Public Service Authority. The office shall strive to minimize differing formats for reports, taking into account the reporting requirements of other state and federal agencies. For electrical utilities and public utilities providing gas services subject to the jurisdiction of the commission, the reporting form must be in a format acceptable to the commission.

Appendix B: PURPA Qualifying Facilities

The Public Utilities Regulatory Policies Act of 1978 (PURPA) enables end users who generate power for their facilities to make any excess power available to the electric utilities supplying those users. PURPA also allows private companies to generate and to supply electricity to utilities if that power is generated using approved energy resources. "Qualifying facilities", as defined by PURPA, include both 1) small power production facilities using renewable fuel sources, such as wind, solar, hydroelectric, biomass, waste, or geothermal; and 2) cogeneration facilities that produce both electricity and thermal energy in a way that is more efficient than the separate production of both forms of energy. Utility companies are required to purchase power from qualifying facilities at a price equivalent to the avoided cost of additional generation. The purchase of electricity from qualifying facilities and other customer-owned generation helps utilities to offset growth in overall and peak demand.

Qualifying facilities are classified into two categories: 1) purchase, meaning that utilities purchase the power generated; and 2) displace, meaning that the power is used by the facility itself, displacing power that would otherwise be drawn from the electrical grid. As shown in Table 3 below, qualifying facilities in South Carolina had the capacity to provide 156,320 kW of power as of February 2011.

See Table of PURPA Qualifying Facilities, provided by the Office of Regulatory Staff, on the following page.

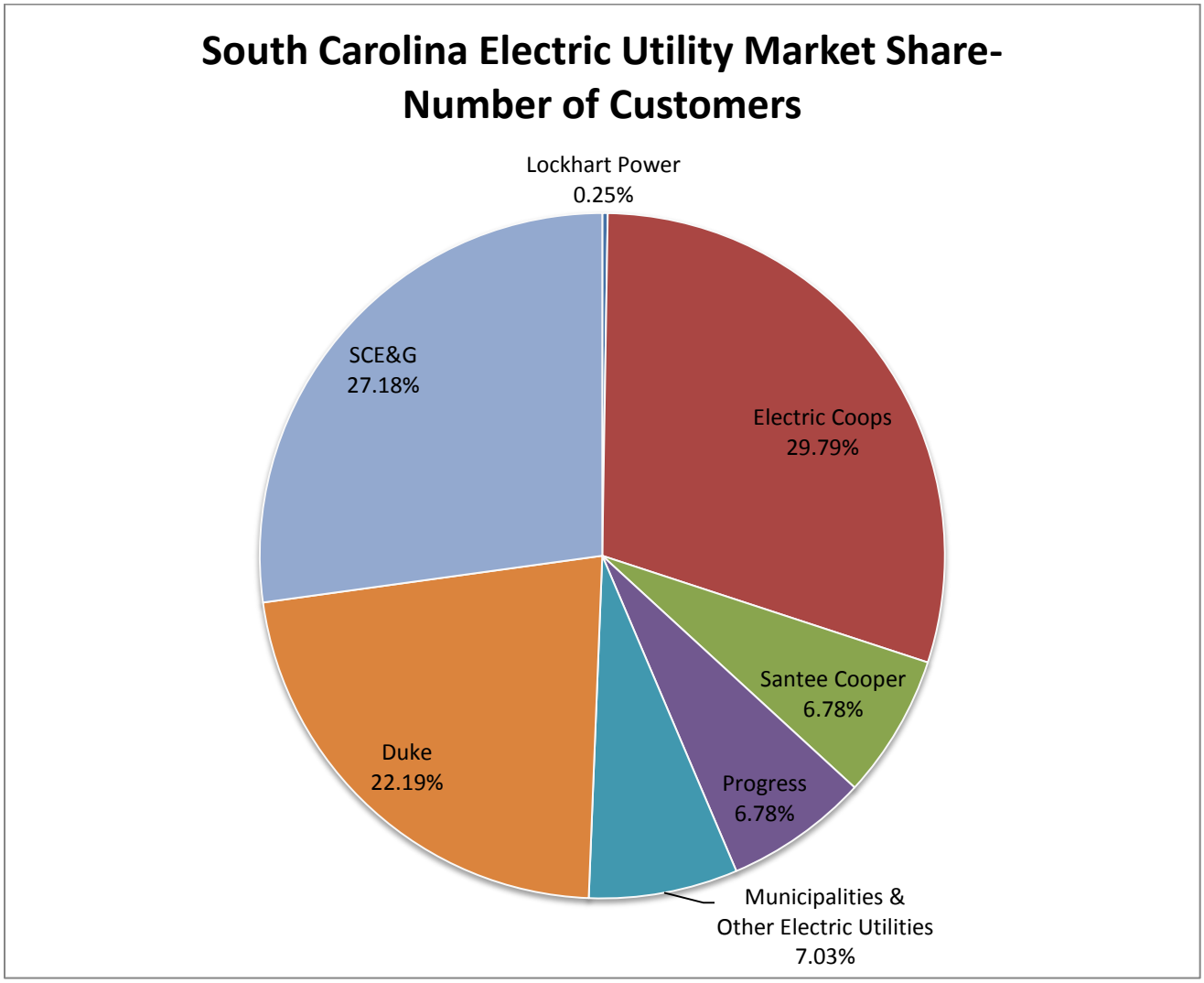
SOUTH CAROLINA INVESTOR OWNED UTILITIES

COGENERATION/SMALL POWER PRODUCERS

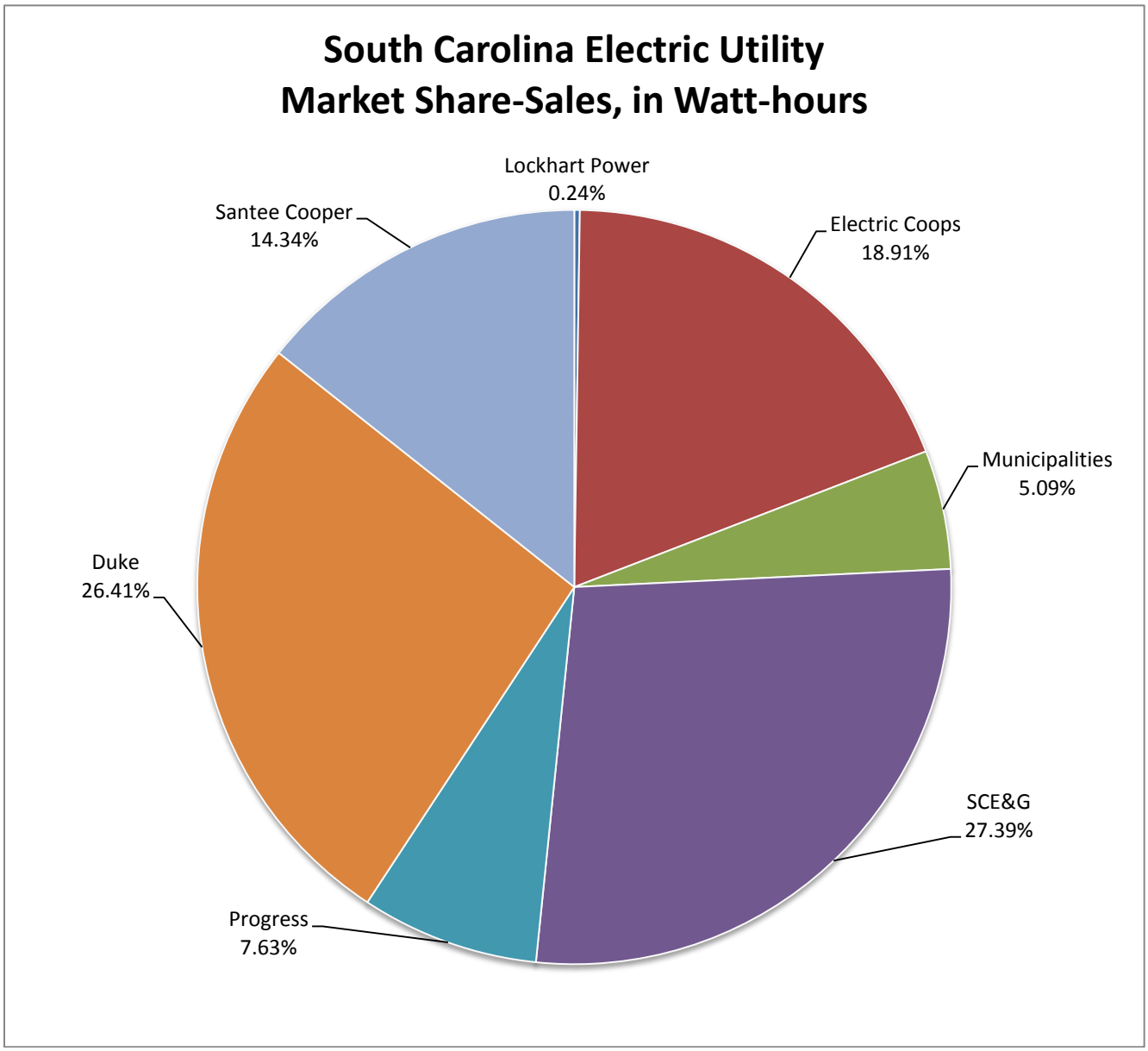
UTILITY	PLANT NAME	PLANT OWNER	LOCATION	TYPE FUEL	CAPACITY KW	RATE SCHEDULE	PURCHASE/ DISPLACE	PLANNED/ OPERATE
DEP	SMURFIT-STONE CONTAINER*	SMURFIT-STONE CONTAINER	FLORENCE	W/C	25,000	CONTRACT	PURCHASE	OPERATING
DEP	INVISTA SARL	INVISTA SARL	CAMDEN	COAL	28,000	N/A	DISPLACE	OPERATING
DEP	SONOCO PRODUCTS CO	SONOCO PRODUCTS	HARTSVILLE	W/C	27,000	N/A	DISPLACE	OPERATING
DEP	LANEY DEVELOPMENT, INC	LANEY DEVELOPMENT, INC	FLORENCE	PV	11	CONTRACT	PURCHASE	OPERATING
DEP	DARLINGTON COUNTY SCHOOLS	DARLINGTON COUNTY SCHOOLS	DARLINGTON	PV	4	CSP	PURCHASE	OPERATING
DEP	JAMES ANDERSON	JAMES ANDERSON	NICHOLS	PV	5	CSP	PURCHASE	OPERATING
DEP	JAMES ANDERSON	JAMES ANDERSON	NICHOLS	PV	6	CSP	PURCHASE	OPERATING
TOTAL					80,026			
DEC	PIEDMONT*	AQUENERGY SYSTEMS, INC	PIEDMONT	HYDRO	1,050	PP	PURCHASE	OPERATING
DEC	WARE SHOALS*	AQUENERGY SYSTEMS, INC	WARE SHOALS	HYDRO	6,300	PP	PURCHASE	OPERATING
DEC	CHEROKEE FALLS*	AQUENERGY SYSTEMS, INC	CHEROKEE FALLS	HYDRO	4,140	CONTRACT	PURCHASE	OPERATING
DEC	BMW*	BMW MFG CORP.	GREER	GAS	10,000	HPX	DISPLACE	OPERATING
DEC	HAYGOOD SOLAR INSTALLATION*	BETTY HAYGOOD	FOUNTAIN INN	PV	5	PP	PURCHASE	OPERATING
DEC	GAFFNEY*	CHEROKEE COUNTY COGENERATION PARTNERS	GAFFNEY	GAS	100,000	CONTRACT	PURCHASE	OPERATING
DEC	MIZELL PV INSTALLATION*	CLARK H. MIZELL	GRAY COURT	PV	6	PP	PURCHASE	OPERATING
DEC	CLIFTON 3*	CONVERSE ENERGY	CLIFTON	HYDRO	1,250	PP	PURCHASE	OPERATING
DEC	ENOREE LFG*	GREENVILLE GAS PRODUCERS, LLC	GREER	LFG	3,200	PP	PURCHASE	OPERATING
DEC	RIVERDALE*	INMAN MILLS (RIVERDALE DEVELOPMENT)	ENOREE	HYDRO	1,600	PP	PURCHASE	REHAB
DEC	ITRON PV INSTALLATION*	ITRON	WEST UNION	PV	48	PP	PURCHASE	OPERATING
DEC	FINE PV INSTALLATION*	JODY FINE	WARE SHOALS	PV	2	PP	PURCHASE	OPERATING
DEC	KAREN STURGIS*	KAREN STURGIS	GREENVILLE	PV	5	PP	PURCHASE	OPERATING
DEC	BAILES PV INSTALLATION*	LAMAR BAILES	WALHALLA	PV	4	PP	PURCHASE	OPERATING
DEC	MILLER PV INSTALLATION*	LAWRENCE B. MILLER	ANDERSON	PV	3	PP	PURCHASE	OPERATING
DEC	LOWER PACOLET HYDRO*	LOCKHART POWER CO	PACOLET	HYDRO	800	CONTRACT	PURCHASE	OPERATING
DEC	UPPER PACOLET HYDRO*	LOCKHART POWER CO	PACOLET	HYDRO	1,100	CONTRACT	PURCHASE	OPERATING
DEC	LOCKHART MINIMUM FLOW HYDRO*	LOCKHART POWER CO	LOCKHART	HYDRO	850	CONTRACT	PURCHASE	OPERATING
DEC	WELLFORD RENEWABLE ENERGY FACILITY*	LOCKHART POWER CO	WELLFORD	LFG	1,600	CONTRACT	PURCHASE	OPERATING
DEC	BOYD'S MILL*	NORTHBROOK CAROLINA HYDRO, L.L.C.	WARE SHOALS	HYDRO	1,500	PP	PURCHASE	OPERATING
DEC	HOLLIDAY'S BRIDGE*	NORTHBROOK CAROLINA HYDRO, L.L.C.	BELTON	HYDRO	3,500	PP	PURCHASE	OPERATING
DEC	SALUDA*	NORTHBROOK CAROLINA HYDRO, L.L.C.	GREENVILLE	HYDRO	2,400	PP	PURCHASE	OPERATING
DEC	UPPER PELZER*	PELZER HYDRO CO. #	PELZER	HYDRO	2,020	PP	PURCHASE	OPERATING
DEC	LOWER PELZER*	PELZER HYDRO CO. #	WILLIAMSTON	HYDRO	3,300	PP	PURCHASE	OPERATING
DEC	R.B. SIMMS FILTRATION PLANT*	THE CPW OF THE CITY OF SPARTANI	CHESNEE	HYDRO	1,000	PP	PURCHASE	OPERATING
DEC	BATES PV INSTALLATION*	THOMAS W. BATES	SIMPSONVILLE	PV	5	PP	PURCHASE	OPERATING
TOTAL					145,688			
SCE&G	INTERNATIONAL PAPER	INTERNATIONAL PAPER CORP.	EASTOVER	W/C	97500	CONTRACT	PUR / DISP	OPERATING
SCE&G	MARINE CORPS RECRUIT DEPOT-PARRIS ISLAND	DEPT. DEFENSE	PARRIS ISLAND	GAS	3000	N/A	DISPLACE	OPERATING
TOTAL					100,500			
Total for 35 stations					326,214			

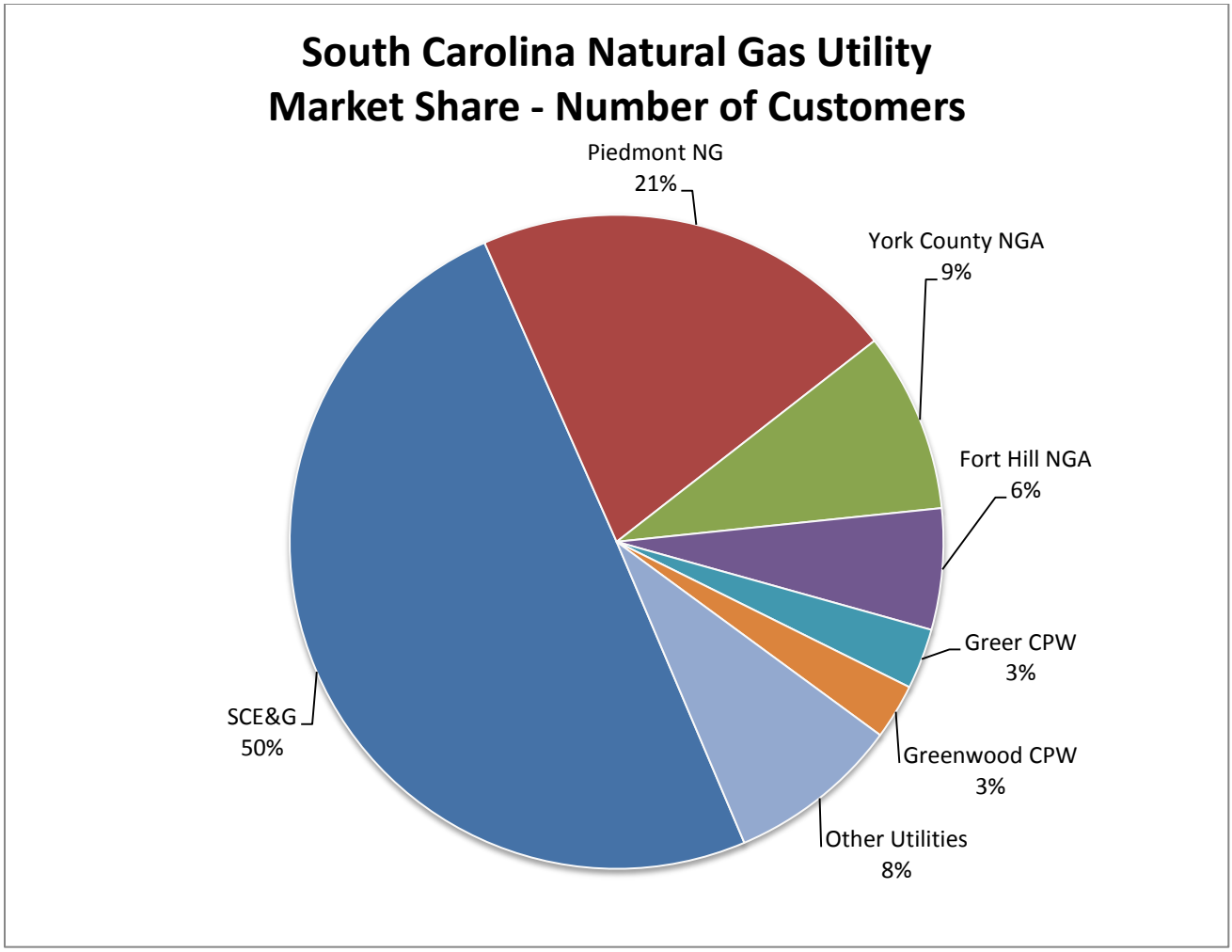
* denotes PURPA QF
\# denotes SUBSIDIARY OF ENEL, NORTH AMERICA
SOURCE: South Carolina Office of Regulatory Staff
UPDATED 9/18/14

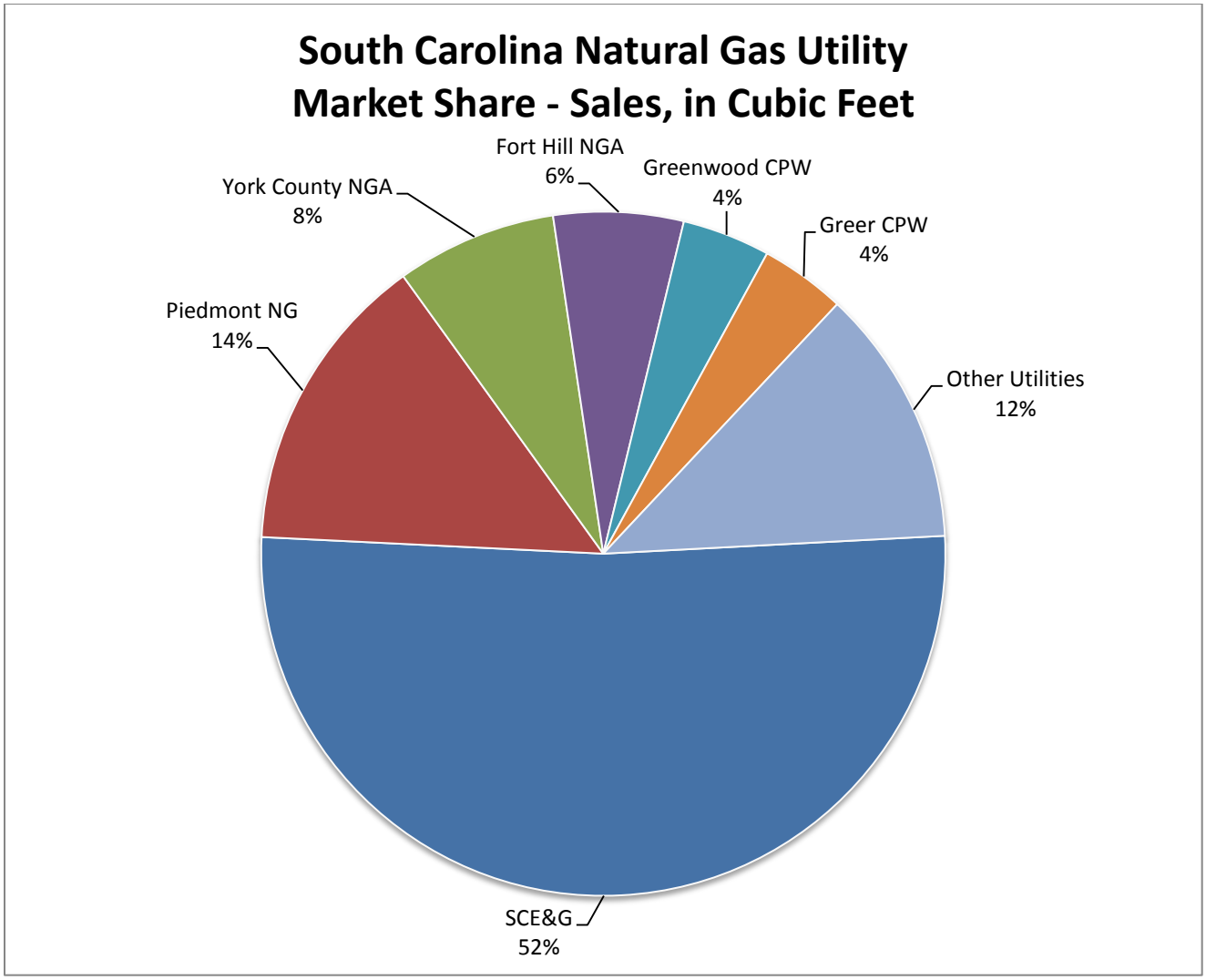
Appendix C
South Carolina Electric and Natural Gas Utility Market Share[12]



[12] Sources: U.S. Energy Information Administration, Forms EIA-861 and EIA-176 (2012)


South Carolina Electric Utility
Market Share-Sales, in Watt-hours
Lockhart Power
0.24%
Santee Cooper
14.34%
Electric Coops
18.91%
Municipalities
5.09%
Duke
26.41%
SCE&G
27.39%
Progress
7.63%


South Carolina Natural Gas Utility
Market Share - Number of Customers
Piedmont NG
21%
York County NGA
9%
Fort Hill NGA
6%
Greer CPW
3%
Greenwood CPW
3%
Other Utilities
8%
SCE&G
50%


South Carolina Natural Gas Utility
Market Share - Sales, in Cubic Feet
Fort Hill NGA
6%
Greenwood CPW
4%
Greer CPW
4%
York County NGA
8%
Piedmont NG
14%
Other Utilities
12%
SCE&G
52%

SC ENERGY OFFICE

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