

*South Carolina Public
Service Authority
(Santee Cooper)*



INTEGRATED RESOURCE PLAN

November 2013

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Introduction

The South Carolina Public Service Authority (“Santee Cooper”) is a body corporate and politic of the State of South Carolina. Santee Cooper’s primary business operation is the production, transmission and distribution of electrical energy, both at wholesale and retail, to the citizens of South Carolina. Santee Cooper is also authorized to acquire, treat transmit, distribute and sell water at wholesale within the counties of Berkeley, Calhoun, Charleston, Clarendon, Colleton, Dorchester, Orangeburg and Sumter, South Carolina. Santee Cooper began electric power operations in 1942. The commercial operation of the regional water system began in October 1994.

Santee Cooper is one of the nation’s largest municipal wholesale utilities, whose system serves directly or indirectly approximately 2 million customers in all 46 counties of South Carolina. Santee Cooper serves directly and indirectly suburban areas outside Charleston, Columbia, Greenville and Spartanburg as well as the coastal areas of Myrtle Beach and the Grand Strand, Hilton Head Island, Kiawah Island and Seabrook Island.

Santee Cooper’s direct customers currently include 29 large industrial customers, Central Electric Power Cooperative Inc. (“Central”), and two municipal electric systems, the City of Georgetown and the City of Bamberg (“Municipal” customers). Central is an association of 20 electric distribution cooperatives, including the five upstate electric distribution cooperatives that were formerly members of the Saluda River Electric Cooperative, Inc. Central serves primarily residential, commercial and small industrial customers in all 46 counties of the State. Through Central and the two municipal electric systems, approximately 744,000 customers are served indirectly by Santee Cooper. Santee Cooper also serves directly approximately 167,000 residential, commercial and small industrial retail customers in parts of Berkeley, Georgetown, and Horry counties (“Distribution” customers).

Santee Cooper and Central adopted an amendment to the Central Agreement on May 20, 2013 that better aligns their future interests, formalizes how they will jointly plan for new resources, and defers their rights to terminate the agreement prior to December 31, 2058.

Central has entered into requirements agreements with all 20 of its member cooperatives that extend through December 31, 2058 and obligate those members to pay their share of Central's costs, including costs paid under the Central Agreement.

Santee Cooper has a long-term power agreement with Piedmont Municipal Power Agency ("PMPA") in which Santee Cooper will provide PMPA its supplemental electric power and energy requirements (ranging from approximately 200 MW to 300 MW) above its current resources beginning on January 1, 2014, for a term of no less than 12 years. Santee Cooper also has an agreement with Alabama Municipal Electric Authority to provide 50 MW unit-contingent capacity and associated energy (25MW-50MW) beginning on January 1, 2014, for a term of 10 years.

On a regular basis, Santee Cooper analyzes the existing and future demand and energy needs of its customers in order to ensure it has a plan that will serve its customers in an economical and reliable manner.

Santee Cooper has evaluated its capital improvement program and long-term power supply plan in light of the on-going economic downturn, the reduction in previously anticipated sales to Central, as described in the Integrated Resource Plan – Load Forecast Overview, and new EPA regulations which increase the operating costs of coal-fired generating units. As a result, Santee Cooper will retire six electric generating units, as described in the Integrated Resource Plan – Generation Expansion Plan, and is seeking to reduce its level of participation in Summer Nuclear Units 2 and 3 below its current 45% to as low as 20% to better balance its nearer term capacity needs with the long-term benefits of nuclear power ownership. Due to the tradeoffs between the higher capital cost and lower fuel cost of nuclear, the total cost per kWh to our customers, at a 45% or 20% level of ownership, is not significantly different.

This Integrated Resource Plan ("IRP") contains the demand and energy forecast for a fifteen-year period, as well as a program for meeting the requirements shown in the forecast. This report also includes a description of demand-side management programs as required by SC Code Section 58-37-10, -30 and – 40.

I. Load Forecast

Overview

The load forecast is updated on an annual basis and includes projected monthly energy and peak demand requirements for a twenty year forecast horizon. Santee Cooper and GDS Associates, Inc. (“GDS”) in conjunction with Central update the forecasting models, prepare an economic outlook, and generate the energy and peak demand forecasts. The forecast is based on an analysis of historical events and assumptions regarding the future. These assumptions relate to key factors known to influence energy consumption and peak demand, including economic activity, housing characteristics, appliance mix, appliance efficiencies, electricity prices, weather conditions, and local area demographics.

The Santee Cooper territorial forecast represents the aggregate of energy and peak demand projections developed for four sectors: Distribution, Industrial, Central, and Municipal. The Distribution and Industrial customers represent Santee Cooper’s retail load, and the Central and Municipal sectors represent Santee Cooper’s wholesale load. The weather-sensitive portion of the energy forecast (residential and commercial classifications for the Distribution, Central, and Municipal sectors) is developed using econometric models. The non-weather sensitive industrial energy forecast is developed based on historical trends and information provided by individual industrial customers.

Peak demand projections are developed by sector. Econometrics is used to project peak demand for the Distribution and Central sectors. Peak demand for the Municipal sector is based on total energy requirements and assumed load factors. Industrial customer demand is forecast based on contract demand.

The 2013 load forecast includes energy and peak demand savings from future energy efficiency and conservation programs. The recent economic downturn and estimated recovery is also taken into account. The “base case” load forecast is based on projected economic activity and normal weather conditions, which are based on the most recent twenty-year averages. In addition to the base case load forecast, high and low-range

projections of energy and peak demand requirements are developed to address uncertainties regarding the future.

Process

1) Data Collection

The load forecast database is updated annually to include the most recent historical data. Database elements include: electric system data (e.g., number of customers, kWh sales, and revenues by customer class), economic and demographic data, electricity prices, market characteristics, housing characteristics, and weather data.

2) Economic Outlook

An economic outlook is prepared each year to address recent trends in economic activity and to develop growth trends for key economic and demographic factors, including: population, number of households, employment, personal income, retail sales, gross state product, and inflation. Economic outlooks are prepared for the Santee Cooper service area (Myrtle Beach metropolitan statistical area) and for the Central service area (the state of South Carolina). For the purposes of the 2013 load forecast, historical and projected economic and demographic data were obtained from both Moody's Analytics and Global Insights.

3) Forecast Development

The Santee Cooper load forecast represents a territorial load covering portions throughout the state of South Carolina. The forecast is comprised of projections developed for the Distribution, Industrial, Central, and Municipal sectors. Forecasts are prepared for each sector and are aggregated to produce the combined Santee Cooper territorial load forecast.

3.1 Distribution

Distribution requirements include energy sales, peak demand, and distribution losses for the residential, commercial and small industrial classifications.

The number of residential customers is projected using a regression model that specifies a relationship between number of customers, number of households, and household market share (percentage of households in the Myrtle Beach metropolitan statistical area served by Santee Cooper). A statistically adjusted end-use model is used to project average energy use per residential customer. The model quantifies the impacts of real household income, price of electricity, household size, housing characteristics, market share of major electric end-uses, appliance efficiencies, and weather conditions. Energy sales are computed as the product of number of customers and average energy use per customer.

The number of commercial and small industrial customers is projected using a regression model that specifies a relationship between number of customers and employment. Average use per customer is projected using a regression model specifying a relationship between energy use per customer, price of electricity and weather conditions. Energy sales are computed as the product of number of customers and average energy use per customer.

Projections of peak demand are developed at the aggregate sector level by season (summer and winter). Econometric models are used to project peak demand as a function of weather normalized energy sales and maximum or minimum daily temperature on the summer or winter peak day.

3.2 *Industrial*

Projections of industrial energy sales and peak demand are developed individually for each customer. Projections are based on historical trends, contract demands, and information regarding future plans collected from the individual industrial customers.

3.3 *Central Requirements*

Central's 2013 load forecast was developed by Central and reviewed by Santee Cooper staff. The forecast was based on econometric models and represents the aggregate 20-year forecast for Central's 20 member cooperatives. Santee Cooper and Central entered into an agreement in 2009 that allowed Central to transition the purchase of the portion of the power and energy requirements of the five Former Saluda Members directly connected to the transmission system of Duke Energy Carolinas, LLC ("Duke Carolinas") (the "Upstate Load") to another supplier and in January 2013, Central began transitioning the Upstate Load to Duke Carolinas, a subsidiary of Duke Energy Corporation. The Upstate Load, which is approximately 22% of Central's current energy requirements, will transition to Duke Carolinas over a six year period beginning in 2013, and by the end of the transition in 2019, will amount to approximately 1,000 Megawatts. The Central forecast reflects the transition of the Upstate Load.

3.4 *Municipal*

Energy and peak demand requirements for the Municipal sector represent less than one percent of total system requirements. The number of municipal customers is assumed at the current two throughout the forecast period. The number of customers served by the individual cities is not projected. A regression equation, including heating degree days, cooling degree days and an autoregressive parameter, is used to project total energy sales for the municipal sector.

Average seasonal load factors, based on recent historical values, are applied to total energy sales to compute peak demand projections.

3.5 *Total Territorial Requirements*

Total territorial requirements include the combined energy and peak demand requirements for the four sectors (i.e., Distribution, Industrial, Central and Municipal). The peak demand projections represent the highest

simultaneous 60-minute load for the combined four sectors. High and low range peak demand forecast scenarios were developed to address weather sensitivity by combining the respective weather impacts for each sector. Impacts for the Distribution were based on an econometric model incorporating extreme and mild temperatures on the peak day and the two days prior to the peak day. Impacts for the Central sector were based on regression model estimates incorporating extreme and mild temperatures on the peak day. The weather impact for the Municipal sector was assumed at 4 MW. No weather impacts for the Industrial sector were developed since that sector is not weather sensitive.

The following table (Table 1) contains the forecasted demand and energy included in LF1301. Table 2 contains historical energy and demand.

Table 1
2013 LOAD FORECAST ⁽¹⁾

	Summer Peak (MW)	Winter Peak (MW)	Energy Sales (GWH)
2013	5,292	5,836	28,587
2014	5,264	5,796	28,526
2015	5,170	5,759	28,201
2016	5,112	5,690	27,991
2017	5,040	5,614	27,640
2018	4,965	5,543	27,339
2019	4,937	5,526	27,251
2020	4,980	5,582	27,488
2021	5,041	5,640	27,710
2022	5,109	5,716	28,014
2023	5,172	5,787	28,297
2024	5,233	5,857	28,604
2025	5,306	5,928	28,879
2026	5,375	6,001	29,178
2027	5,441	6,070	29,462

(1) Excludes all off-system sales.

Table 2
Historical Sales and System Peak Loads

Year	Sales (GWH)	System Peak Load ⁽¹⁾ (MW)
2012.....	26,756.....	5,387
2011.....	27,552.....	5,676
2010.....	28,182.....	5,743
2009.....	25,813.....	5,590
2008.....	26,687.....	5,650
2007.....	27,221.....	5,563
2006.....	25,422.....	5,195
2005.....	25,064.....	5,371
2004.....	24,451.....	5,088
2003.....	24,060	5,373
2002.....	24,121	4,795
2001.....	22,400	4,803
2000.....	22,139	3,876
1999.....	20,281	3,729
1998.....	19,466	3,523
1997.....	18,437	3,336
1996.....	17,548	3,441

(1) Excludes all off-system sales to other utilities.

II. Existing Resources

Santee Cooper's total summer Maximum Continuous Rating ("MCR") is 5,183 MW for owned generating facilities (see Table 3). In addition, Santee Cooper presently receives 84 MW of firm supply from the U.S. Army Corps of Engineers (the "Corps") and 319 MW of firm hydroelectric power from the Southeastern Power Administration ("SEPA"). The SEPA allocation consists of 184 MW for wheeling to the SEPA preference customers served by Santee Cooper and 135 MW purchased by Santee Cooper for its customers. Santee Cooper also receives 8 MW of dependable capability from the Buzzard's Roost hydroelectric generating facility which it leases from Greenwood County, South Carolina and 38 MW of biomass capacity and associated energy under a power purchase agreement that commenced in September 2010 and extends for 15 years. For the time period January 2011 through December 2014, Santee Cooper entered into an agreement with The Energy Authority for the purchase of 155 MW of unit-contingent power from a Southern Power Company simple cycle combustion turbine resource. Additionally, Santee Cooper has entered into a purchase agreement with JP Morgan Ventures Energy Corporation for 300 MW of capacity and associated energy beginning June 1, 2012 and continuing through December 31, 2015.

Table 3
Santee Cooper owned generating facilities in MW⁽¹⁾

Generating Facility	Units	Location	Summer MCR	Winter MCR	Fuel	Began Commercial Operation
Jefferies Station	1, 2, 3, 4, and 6	Moncks Corner	128	128	Hydro	1942
Wilson Dam		Lake Marion	2	2	Hydro	1950
Jefferies Station ⁽²⁾	1 and 2	Moncks Corner	84	88	Oil	1954
Myrtle Beach Combustion Turbines	1 and 2	Myrtle Beach	16	20	Oil/Gas	1962
	3 and 4		38	40	Oil	1972
	5		21	25	Oil	1976
Hilton Head Combustion Turbines	1	Hilton Head	19	20	Oil	1973
	2	Island	19	20	Oil	1974
	3		52	60	Oil	1979
Winyah Station	1	Georgetown	275	280	Coal	1975
	2		285	290	Coal	1977
	3		285	290	Coal	1980
	4		285	290	Coal	1981
V.C. Summer Nuclear Station ⁽³⁾	1	Jenkinsville	318	318	Nuclear	1983
Cross Station	1	Cross	580	590	Coal	1995
	2		570	585	Coal	1983
	3		600	600	Coal	2007
	4		600	600	Coal	2008
Horry County Landfill Gas		Conway	4	4	Landfill methane gas	2001
Lee County Landfill Gas		Bishopville	10	10	Landfill methane gas	2005
Richland County Landfill Gas		Elgin	8	8	Landfill methane gas	2006
Anderson County Landfill Gas		Belton	3	3	Landfill methane gas	2008
Georgetown County Landfill Gas		Georgetown	1	1	Landfill methane gas	2010
Berkeley County Landfill Gas		Moncks Corner	3	3	Landfill methane gas	2011
Rainey Station	Combined Cycle	Starr	460	520	Gas	2002
	CT 2A		146	180	Gas	2002
	CT 2B		146	180	Gas	2002
	CT 3		75	90	Gas	2004
	CT 4		75	90	Gas	2004
	CT 5		75	90	Gas	2004
Total Capacity			5,183	5,425		

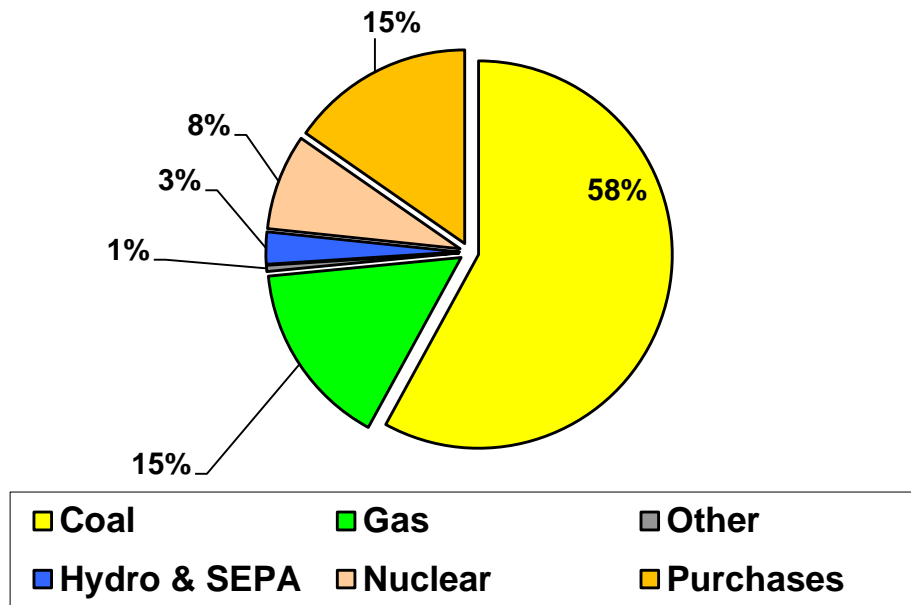
(1) Grainger Generating Station Nos. 1 and 2 and Jefferies Generating Station Nos. 3 and 4 were retired on December 31, 2012.

(2) These units will be retired within a timeline to be determined by Santee Cooper's management and in compliance with applicable regulatory deadlines.

(3) Represents Santee Cooper's one-third ownership interest.

In 2014, it is forecasted that Santee Cooper's total energy needs will be met primarily by coal at 58% (see Figure 1). Nuclear energy is projected to supply 8% of the total energy needs, natural gas is projected to supply 15%, while purchases are projected to supply 15%.

Figure 1
2014 Projected Total Energy Supply



III. Projections of Load, Capacity and Reserves

Santee Cooper meets its customers' demand and energy requirements through the use of Santee Cooper generation facilities as well as purchased power contracts. In addition, Santee Cooper ensures there is available capacity over and above that amount necessary to meet the load requirements. This reserve capacity is used to cover unexpected events, such as unit outages, adverse weather conditions, unexpected demand, or an unplanned loss in the transmission system. Santee Cooper evaluates its planning reserve targets periodically and for the purposes of these projections has used reserve targets of 12% and 15%, respectively, for the winter and summer months.

In planning for future reserve needs, the load forecast's firm load requirements, less any requirements that are served by reserved resources such as SEPA, are used. The amount of future reserves needed is compared to the amount of current and planned generation to gauge the need for future generating units.

The load forecast, as well as reserve margin and capacity information, is contained in the table that follows (see Table 4).

Table 4
Seasonal Projections of Load, Capacity, and Resources ⁽¹⁾

W=Winter, S=Summer

	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
	12/13	2013	13/14	2014	14/15	2015	15/16	2016	16/17	2017	17/18	2018	18/19	2019	19/20	2020	20/21	2021	21/22	2022	22/23	2023	23/24	2024	24/25	2025	25/26	2026	26/27	2027
Forecast Requirements																														
1 Santee Cooper System Peak	5,837	5,293	5,797	5,264	5,761	5,171	5,690	5,113	5,614	5,040	5,544	4,966	5,526	4,938	5,583	4,980	5,640	5,041	5,717	5,110	5,788	5,174	5,858	5,233	5,928	5,307	6,002	5,376	6,071	5,442
2 Interruptible Load	(411)	(415)	(415)	(430)	(430)	(413)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)	(430)
3 Firm Sales ⁽²⁾	<u>26</u>	<u>26</u>	<u>136</u>	<u>262</u>	<u>145</u>	<u>273</u>	<u>155</u>	<u>289</u>	<u>166</u>	<u>301</u>	<u>177</u>	<u>312</u>	<u>187</u>	<u>324</u>	<u>196</u>	<u>337</u>	<u>205</u>	<u>351</u>	<u>215</u>	<u>366</u>	<u>226</u>	<u>379</u>	<u>186</u>	<u>337</u>	<u>196</u>	<u>351</u>	<u>206</u>	<u>364</u>	<u>217</u>	<u>380</u>
4 Total Reserved Load	5,451	4,903	5,518	5,096	5,475	5,031	5,415	4,971	5,350	4,911	5,290	4,848	5,283	4,832	5,349	4,887	5,415	4,962	5,502	5,045	5,584	5,122	5,614	5,140	5,694	5,227	5,777	5,310	5,857	5,392
5 Load Not Requiring Reserve	<u>(403)</u>	<u>(403)</u>	<u>(447)</u>	<u>(447)</u>	<u>(439)</u>	<u>(439)</u>	<u>(431)</u>	<u>(431)</u>	<u>(424)</u>	<u>(424)</u>	<u>(416)</u>	<u>(416)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(411)</u>	<u>(359)</u>	<u>(359)</u>	<u>(359)</u>	<u>(359)</u>	<u>(359)</u>	<u>(359)</u>	<u>(359)</u>	<u>(359)</u>
6 Total Load Requiring Reserve	5,048	4,499	5,071	4,649	5,036	4,591	4,983	4,539	4,926	4,487	4,874	4,432	4,872	4,421	4,938	4,476	5,004	4,551	5,091	4,634	5,173	4,711	5,255	4,781	5,335	4,868	5,418	4,951	5,498	5,033
Cumulative System Capacity																														
7 Available Generating Capacity	5,875	5,624	5,875	5,624	5,875	5,654	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684	5,935	5,684
8 Projected Renewable Resources ⁽³⁾	38	40	79	79	85	85	102	102	108	108	122	122	133	133	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
9 Projected Resource Additions ⁽⁴⁾	0	0	0	0	0	0	0	0	4	4	4	500	507	995	1,010	996	1,011	998	1,012	998	1,012	999	1,013	1,001	1,015	1,001	1,015	1,001	1,015	1,001
10 Projected Unit Retirements ⁽⁵⁾	(485)	(476)	(485)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)	(573)	(560)
11 Available Generating Capacity	5,428	5,188	5,469	5,143	5,387	5,179	5,464	5,226	5,474	5,236	5,488	5,746	6,002	6,252	6,517	6,265	6,518	6,267	6,519	6,267	6,519	6,268	6,520	6,270	6,522	6,270	6,484	6,232	6,484	6,232
Cumulative Purchase (Sales) Contracts																														
12 Long Term	403	403	395	395	388	388	380	380	372	372	364	364	359	359	359	359	359	359	359	359	359	359	359	359	359	359	359	359	359	359
13 Mid Term Contract	620	446	470	446	300	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Proj Short Term Contract					10		175	50	100		25																			
15 Cumulative Production Capacity	6,451	6,037	6,334	5,984	6,084	5,866	6,019	5,656	5,946	5,608	5,878	6,110	6,361	6,611	6,876	6,624	6,877	6,626	6,878	6,626	6,878	6,627	6,879	6,629	6,881	6,629	6,843	6,591	6,843	6,591
Reserves																														
16 Generating Reserves	1,000	1,134	817	888	610	836	604	685	596	697	588	1,262	1,078	1,780	1,527	1,738	1,462	1,664	1,376	1,581	1,294	1,505	1,265	1,489	1,187	1,402	1,066	1,281	986	1,199
17 % Reserve Margin	20%	25%	16%	19%	12%	18%	12%	15%	12%	16%	12%	28%	22%	40%	31%	39%	29%	37%	27%	34%	25%	32%	24%	31%	22%	29%	20%	26%	18%	24%

(1) Based on LF1301
(2) Excludes capacity sales under negotiations.
(3) Includes Santee Cooper resources and long-term renewable purchases.
(4) Reflects 45% ownership share of two 1,100MW nuclear units at V.C. Summer Nuclear Station.
(5) In 2012, Santee Cooper's Board of Directors authorized retirement of six electric generating units: Grainger 1&2 and Jefferies 1-4.
Herein Grainger 1&2 and Jefferies 3&4 officially retired on December 31, 2012.
The exact timeline for Jefferies 1&2 will be determined by Santee Cooper's Management and will be in compliance with applicable regulatory deadlines. Table 4 reflects an estimated retirement date of June 2014 for these units.

IV. Generation Expansion Plan

Santee Cooper's overall power supply objective is to continue to satisfy the electric demand and energy needs of its customers with economical and reliable service. In developing a generation expansion plan to accomplish these objectives, Santee Cooper follows a systematic process in accordance with standard industry practice.

The company begins its resource planning process by reviewing its past load history and developing a load forecast that extends 20 years into the future. Following the determination of future load, potential supply-side generating resources are screened to determine which units are both viable and cost effective. These units are then included for consideration in the plan. Santee Cooper considers the possible addition of a variety of new power resources which may include nuclear, natural gas, oil and coal-fired units, renewable resources, and long-term power purchase agreements.

Assumptions about the future operating environment as well as the various costs associated with operating the new units and the overall system are also defined during the process of screening supply-side options. All of these assumptions are used to develop a recommended generation resource plan.

Santee Cooper then undergoes a rigorous financial and risk analysis to verify that the recommended generation resource plan meets Santee Cooper's needs under a variety of different scenarios.

Santee Cooper has evaluated its capital improvement program and long-term power supply plan in light of the on-going economic downturn, the reduction in previously anticipated sales to Central, and new EPA regulations which increase the operating costs of coal-fired generation. As such, the Santee Cooper generation expansion plans include:

- 1) Continuation of engineering and construction for a 45% ownership share of two 1,100 MW nuclear units at the V.C. Summer Nuclear Station site. The NRC

issued the Combined Construction and Operating licenses for the two new nuclear units on March 30, 2012. The placement of the first nuclear concrete occurred on March 11, 2013.

- 2) Santee Cooper is seeking to reduce its level of participation in the units below its current 45% to as low as 20%.
- 3) The retirement of six electric generating units (Grainger Generating Station Nos. 1 and 2 and Jefferies Generating Station Nos. 3 and 4). Jefferies Generating Station Nos. 1 and 2 will be retired within a timeline to be determined by Santee Cooper's management and in compliance with applicable regulatory deadlines.
- 4) Monitoring of potential regulation related to various environmental control requirements affecting Santee Cooper's existing and future generation facilities.
- 5) Periodic evaluation of the generation expansion plan to determine the impacts of items such as potential environmental legislation or regulation, changes in the load forecast, and updated cost information.

Santee Cooper is projecting 145 MW of purchased renewable capacity and energy to be under contract by 2020. So far, efforts to procure that capacity and energy have resulted in approximately 100 MW of the assumed 145 MW under contract, of which nearly 40 MW is currently being generated.

V. Transmission System Adequacy

Santee Cooper's transmission and distribution lines, as well as substations, deliver from the generating stations the reliable, low-cost power expected by customers. Santee Cooper operates an integrated transmission system which includes lines owned and leased by Santee Cooper as well as those owned by Central. The transmission system includes approximately 1,261 miles of 230 kilovolt ("kV"), 1,814 miles of 115 kV, 84 miles of 100kV, 1,733 miles of 69 kV, 14 miles of 46 kV and 97 miles of 34 kV and below overhead and underground transmission lines (see Figure 2). Santee Cooper operates 104 transmission substations and switching stations serving 84 distribution substations and 474 Central Cooperative delivery points. Communications sites at 91

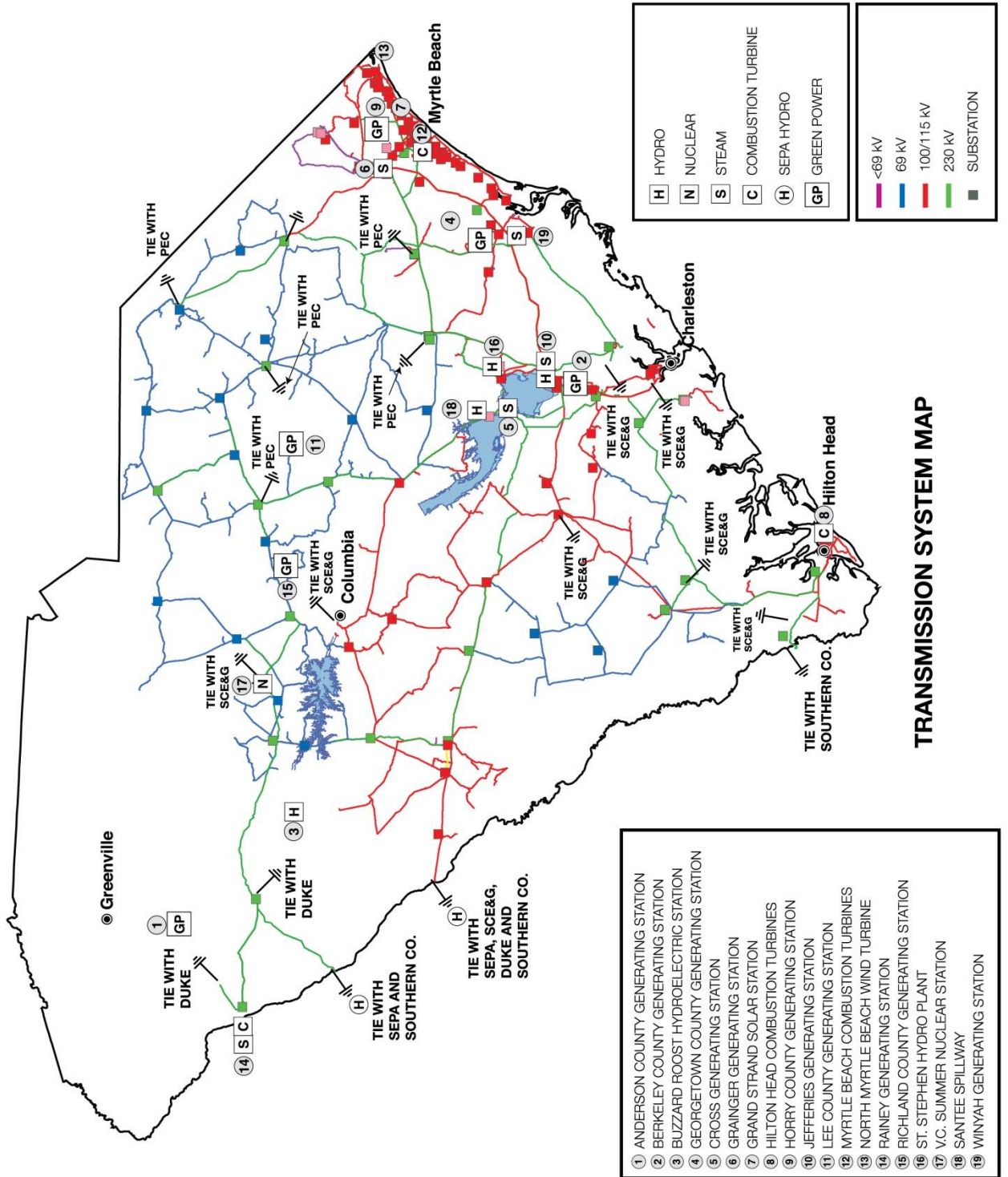
locations are in place to support the monitoring and controlling of integrated power system operations. Santee Cooper plans the transmission system to operate during normal and contingency conditions that are outlined in electric system reliability standards adopted by the North American Electric Reliability Corporation (“NERC”) and to maintain system voltages that are consistent with good utility practice.

Santee Cooper’s transmission system is interconnected with other major electric utilities in the region. It is directly interconnected with SCE&G at eight locations; with Duke Energy Progress at eight locations; with Southern Company Services, Inc. (“Southern Company”) at one location; and with Duke Carolinas (“Duke”) at two locations. Santee Cooper is also interconnected with SCE&G, Duke, Southern Company and SEPA through a five-way interconnection at SEPA’s J. Strom Thurmond Hydroelectric Project, and with Southern Company and SEPA through a three-way interconnection at SEPA’s R. B. Russell Hydroelectric Project. Through these interconnections, Santee Cooper’s transmission system is integrated into the regional transmission system serving the southeastern areas of the United States and the Eastern Interconnection. Santee Cooper has separate interchange agreements with each of the companies with which it is interconnected which provide for mutual exchanges of power.

Santee Cooper is party to the Virginia-Carolinas Reliability Agreement (“VACAR”) which exists for the purpose of safeguarding the reliability of the electric service of the parties thereto. Other parties to the VACAR agreement are SCE&G, Duke Energy Progress, Duke, APCI-Yadkin Division, Dominion Virginia Power, and Public Works Commission of the City of Fayetteville.

Santee Cooper is also a member of the SERC Reliability Corporation, which is one of 8 regions under the NERC.

Figure 2



VI. Energy Efficiency, Conservation, and Demand-Side Management (“DSM”) Activities

For over 20 years, Santee Cooper has offered demand-side management programs. These programs have measures that save energy and/or demand. The energy and/or demand impacts of the actual and projected participation of Santee Cooper’s directly served retail customers are considered when updating the energy and/or demand needs in the generation plan.

In the fall of 2007, Santee Cooper established a Conservation and Renewable Energy (“C&RE”) Department. The purpose of this department is to develop new energy efficiency and conservation programs and to obtain renewable generation resources.

Existing Energy Efficiency Programs

Reduce the Use South Carolina

Santee Cooper launched its “Reduce the Use South Carolina” energy efficiency effort in September 2009. The goal of this 10-year-long effort is to substantially reduce the use of electricity and improve energy efficiency among its 167,000 direct served residential and commercial customers through rebate programs.

The comprehensive “Reduce the Use South Carolina” energy efficiency effort includes energy efficiency initiatives to help achieve an annual savings of 209 million kilowatt hours by 2020.

Santee Cooper has launched the following programs:

Residential Programs

Smart Energy Existing Homes Program

The Smart Energy Existing Homes Program is an integral part of Santee Cooper's program and offers home energy evaluations and financial assistance for energy efficiency improvements that are designed to improve the affordability of your home year-round.

Santee Cooper provides rebates and low-interest financing for qualifying energy efficiency improvements.

Measure	Customers	Incentive
Individual Water Heater	15	\$35.00
Duct Sealing & Testing	2	\$200.00
Individual 15 SEER Heat Pump	356	\$300.00
Heat Pump Tune Up	741	\$50.00
Building Envelope	4	\$155.00 to \$400.00

In 2012, there were 994 customers participating for a savings of 1,087 MWh. The total incentive cost was \$146,180.

On-site Energy Assessments

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

Low Income Weatherization Program

The Low-Income Weatherization Program incorporates a comprehensive approach to building energy retrofits; encouraging not only high efficiency equipment acquisition but also proper unit sizing, installation, operation, interaction, and reducing overall home infiltration. Many Weatherization programs focus on simple high efficiency installations only, which captures a fraction of the savings. Industry research and contractor interviews show that there are significant additional savings opportunities when

comprehensively addressing the needs of low income housing. In addition to bringing awareness to customers about home weatherization and the long-term operational savings they will experience through their high-efficiency retrofits, proper installation, and/or maintenance of the system, the purpose of the Program also is to promote market transformation through increasing customer awareness in the marketplace. There were six projects completed in 2012.

Smart Energy New Homes Program

The Smart Energy New Homes Program began on November 1, 2009. The Smart Energy New Homes Program is comprised of two tiers of energy efficiency standards, and it offers incentives to builders to facilitate and encourage their participation. ENERGY STAR® New Home performance standards require that homes be 15% more efficient than the requirements in the 2006 International Energy Efficiency Code (IEEC). Smart Energy New Home performance standards require that homes be 10% more efficient than the requirements of the 2006 IEEC. The rebate for Smart Energy New Homes ENERGY STAR® is \$1,600 and the rebate for the Smart Energy New Homes is \$1,000, both of which are payable to the homebuilder.

In 2012, there were 19 new homes built that qualified as Energy Star homes for a savings of 48 MWh. There were 25 new homes built that qualified as Smart Energy homes for a savings of 38 MWh. The incentive cost was \$55,400.

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:

\$35 Rebate towards the recycling of a working pre-1993 refrigerator

\$40 Rebate towards the purchase of a new ENERGY STAR® refrigerator

\$75 Rebate towards the purchase of a new ENERGY STAR refrigerator plus recycling of one working refrigerator

\$110 Rebate for purchasing a new ENERGY STAR refrigerator and recycling of two working refrigerators (at least one must be a pre-1993 model)

Program participation in 2012 resulted in 172 old refrigerators being recycled and 852 new ENERGY STAR refrigerators being purchased with an estimated annual energy savings of 128 MWh. Total rebates for the Refrigerator Rebate program incurred through Santee Cooper in 2012 were \$14,540.

Equipment and Lighting Incentives: Residential CFL's

CFL's can save about \$30 or more electricity costs over each bulb's lifetime. In 2012 the Residential CFL's program gave out 23,358 bulbs to 1,948 customers saving 681 MWh. The incentive cost was \$1.45 per bulb for a total bulb cost of \$33,869.

Commercial Programs

Commercial Prescriptive Program

The types of measures that qualify are Lighting, HVAC, Building Envelope, and Refrigeration. In 2012, there were 244 customers that participated for a savings of 6,254 MWh. These savings come from several different measures that are implemented as an individual project or in combination with other measures. The incentive cost was \$485,320.

Commercial Custom Program

Custom rebates are tailored specifically to provide unique energy saving initiatives on a business-by-business basis. The rebate is based on \$0.10 for every kWh saved during first-year, not to exceed 50% of the qualifying measure's incremental cost. Customers

will be subject to a maximum rebate of \$200,000 per facility per calendar year for the Commercial Custom Program 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 2012, 19 customers participated for a savings of 1,061 MWh. The incentive cost was \$88,949.

Commercial Direct Install Lighting Program

Santee Cooper's Direct Install Lighting Program is an energy efficiency program designed to help business owners make energy saving lighting upgrades. These days money is tight, especially for small business owners, and we recognize that. That is why Santee Cooper is offering this rebate to its eligible customers. There were 281 customers that participated for a savings of 1,768 MWh. The incentive cost was \$563,284.

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. In 2012, there were 8,394 High Use bulbs given to 67 customers saving 1,989 MWh and 3,496 Low Use bulbs given to 13 customers saving 182 MWh. The total incentive cost for Commercial CFL's was \$17,241.

Load Management

Interruptible / Economy Power Pricing Rates

Santee Cooper has developed and offers time-of-use, non-firm, and off-peak rates to its direct-served commercial and industrial customers to encourage them to reduce their peak demand. As of December 31, 2012, Santee Cooper had 831 MW of non-firm power

under contract. The use of these rates is taken into account when developing the load forecast and generation plan.

An “economy power” rate is available to industrial customers, which is based on an hourly incremental energy rate. This is a real time pricing rate; the price for energy changes each hour. Customers must schedule their usage each hour. This service is curtailable in emergency situations by Santee Cooper. Pricing alternatives are available under this rate where the energy price is fixed during certain hours. There are also supplemental curtailable and interruptible rates available to industrial customers which allow for curtailment under certain circumstances.

As part of Santee Cooper’s demand control program, currently there are 540 MW’s of load taking service under interruptible and economy power schedules. The portion of this load estimated to be on the system at the peak is excluded from the peak demand calculations for generation planning and reserves resource planning.

Public Information for the promotion of Energy Efficiency and Conservation

Web-based Customer Tips & Tools: Santee Cooper offers online energy saving tips for residential and commercial customers and has a Residential Online Energy Audit. The online energy audit helps customers discover how to reduce their energy consumption and lower their utility bills.

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, measureable 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

2012 that opt-in program included more than 30,000 customers, and our direct mail numbers vary according to the target audience for each. We also communicate with customers through Facebook, Twitter and YouTube; we have more than 1,600 followers on Twitter and more than 28,500 fans on Facebook, both areas of steady growth. We have more than 30,000 views on our YouTube videos.

Public Campaigns: Santee Cooper is increasingly using 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 measureable and lets us know who we are reaching and how they are responding. It also allows us to quickly adjust promotions to achieve better results with our customers and stakeholders. We also 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 incentives, Santee Cooper has established a strong, collaborative network with school districts in the state to provide educators and students with real-world understanding of the power and purpose of electricity as well as the importance of conserving and using power efficiently. Through our business and education partnerships, Santee Cooper is continually supporting the needs of students, teachers and parents.

VII. Renewable Resources and Programs

1. Renewable Energy

HYDRO

Santee Cooper's largest source of renewable energy is the hydroelectric facilities that were developed during the birth of Santee Cooper. Since the 1940's the water that flows through the Santee Cooper lake system has played an integral role in the ability of Santee Cooper to provide low cost reliable power. Originally the hydro units were Santee

Cooper's only source of generating capacity. As Santee Cooper grew over the years the hydroelectric units on the lake have gradually shifted from the sole source of electric generation to being used mainly as peaking capacity today.

While there are no practical larger hydro projects the scale of the Santee Cooper lake system available in the state, there may be the potential to develop small scale projects distributed throughout the state. Santee Cooper is in the process of evaluating the viability of several small hydro locations at existing impoundments around the state.

BIOMASS

In 2001, Santee Cooper became the first utility in South Carolina to produce electric power using methane gas from landfills as a fuel source. Santee Cooper increased its Green Power generation in 2011 by bringing online the Berkeley Landfill Gas Generating Station, its sixth landfill methane generating station. Santee Cooper now has 30 MW of generating capacity that is fueled by methane gas collected at large landfills.

Santee Cooper is looking for ways to increase the use of various forms of biomass to produce electricity. Santee Cooper is investigating the potential of using various wood sources as a fuel, and the potential for methane produced from agricultural waste.

BioEnergy Technologies' facility, located in Berkeley County and delivering power to Santee Cooper through Berkeley Electric Cooperative, began producing power in mid-2013. Their anaerobic digestion process utilizes pre-consumer food waste, grease, food processing waste and wastewater sludge to generate 1.6 MW of renewable electricity. Green Energy Solutions continues to make progress on their first agricultural waste fueled facility, which utilizes poultry waste in an anaerobic digestion process. Santee Cooper's contract with GES allows them to provide up to 25 MW of biogas-fueled renewable energy from multiple facilities around the state.

EDF is finishing construction on their two 15 MW facilities Allendale and Dorchester counties. These facilities operate using wood chips for fuel and should be fully online by the end of the year.

SOLAR

Santee Cooper has developed a Green Power Solar Schools (“GPSS”) program for middle schools around the state and in 2011 the Myrtle Beach Middle School site was dedicated. At the participating schools, Santee Cooper and the local electric cooperative install a 2 kW photovoltaic solar panel (PV) and provide a science curriculum that meets state standards. Twenty Solar School installations have been completed with a total capacity of over 40 kW. To provide training opportunities for the teachers that will be using the curriculum, a similar 2 kW PV panel has also been installed at Santee Cooper’s Wampee Conference Center. In 2013, Santee Cooper expanded the Solar School program to include an additional eight schools around the state; installation at these sites is ongoing.

While South Carolina is not an ideal state for solar power, Santee Cooper continues to investigate and utilize this resource. In addition to the GPSS installations, Santee Cooper built a 16 kW Solar Pavilion at Coastal Carolina University, a 20 kW installation at the Center for Hydrogen Research in Aiken and a second 20 kW installation in December of 2009 at the Technical College of the Lowcountry in Bluffton. Also, with partial funding from the American Recovery and Reinvestment Act, Santee Cooper completed the 311 kW Grand Strand Solar Station in Myrtle Beach in early 2011.

In October of 2013 Santee Cooper signed an agreement with TIG Sun Energy I, LLC to buy the output of a 3 MW solar farm in Walterboro. This comes as the price of solar power dropped around 70% over the past five years. The solar farm will be the largest in the state and will approximately double the total amount of solar power installed in South Carolina. Santee Cooper will be using the project to learn more about integrating solar power into the generation portfolio, both from a cost and reliability standpoint.

WIND

In 2005, Santee Cooper began investigating the wind generating potential in the state. Santee Cooper partnered with the U.S. Department of Energy and the South Carolina Energy Office to contract with AWS Truewind to provide wind mapping of South Carolina. Since the completion of the mapping, Santee Cooper has joined several partnerships to further the study of potential wind generation in the state.

Meteorological Towers: Santee Cooper helped install and maintain 50m anemometer towers at Waites Island in Horry County and the Baruch Institute in Georgetown. Santee Cooper worked with Coastal Carolina University, Clemson University, Savannah River National Labs, Secondwind, and the Baruch Foundation to complete these projects. The Waites Tower was removed in August 2009 after two years of operation and the Baruch Tower is still reporting data. While the towers proved that inland wind resources were not strong enough to sustain utility scale wind turbines, they also partially validated the estimates produced by AWS Truewind in 2005 that predict a large wind resource exists in SC's offshore waters. Also, the Baruch Tower is being used to validate an emerging wind measuring technology, developed by Secondwind. Following the testing, this technology could improve the ability to monitor actual wind data in offshore settings without the installation of large meteorological towers.

Wind Education project: A 2.4 kW Skystream wind turbine was installed at Oceanfront Park in North Myrtle Beach in November of 2010 and has since been in continuous operation. Santee Cooper is working to install small wind turbines at three public locations where the wind resource is determined to be adequate. Preliminary studies at the Coastal Carolina campus and Georgetown High School revealed an inadequate wind resource at these inland sites.

Offshore Wind Research: In March 2009, Santee Cooper, Coastal Carolina University and the SC Energy Office announced a joint buoy deployment measuring ocean

winds that could lay the foundation for offshore wind energy in the Palmetto State.

After collecting data for a full year, all six buoys were removed in August 2010. Coastal Carolina researchers, working closely with counterparts at NC State, have analyzed the buoy data to help better understand the wave, current, tidal, and wind energy available in South Carolina's state waters.

Based on the buoy data, designs for an offshore meteorological platform were completed in 2011. While the costs for building this research platform remain high, Santee Cooper is pursuing collaboration opportunities that would minimize the costs for continuing offshore wind research.

2. GOFER Program

Santee Cooper's Give Oil For Energy Recovery ("GOFER") program, in place since 1990, provides do-it-yourself oil changers a place to safely dispose of used motor oil. In 2012, Santee Cooper collected 1,116,225 gallons of used oil from more than 450 do-it-yourself sites and approximately 1,500 industrial, commercial and farm sites.

3. Green Power Program

Santee Cooper entered the arena of Green Power in 2001, being the first electric utility in South Carolina to offer electricity generated from renewable resources. Green Power costs more to generate than Santee Cooper's traditional generation, and the money raised through Green Power sales is put entirely into the development of new renewable energy. As already noted, Santee Cooper currently generates Green Power through landfill gas facilities, solar panels, biomass and wind. Participation for 2012 was 1,979 participants purchasing 11,819 (100 kWh) blocks of energy.

4. Green Tags

Approval was given in September 2006 for the development of a new environmental program to offer to everyone in South Carolina, for the first time, the ability to purchase local renewable energy through a Green Tag program. This program allows all citizens and businesses in the state to do something positive to improve their environment, no matter their electric provider. Participation in 2012 was 54 Green Tag customers.

Green-e certifies Santee Cooper's Green Power, meaning what we produce meets strict and specific national environmental standards.

VIII. Environmental

The mission of Santee Cooper is to be the state's leading resource for improving the quality of life for the people of South Carolina. One of the chief ways we do that is by protecting the environment. As such, Santee Cooper has developed the following Environmental Policy statement:

Santee Cooper is committed to:

Compliance with all applicable federal, state and local environmental statutes, regulations, enforceable agreements, and permits, and continual improvement in environmental performance, through

1. proactively seeking ways to enhance compliance,
2. promoting conservation and renewable energy initiatives,
3. minimizing environmental risks,
4. promoting pollution prevention, and
5. dedicating personnel, equipment, training, and materials for the comprehensive Environmental Management System.

Conclusion

Santee Cooper has been a leader in protecting our environment, being the first utility in the state to offer Green Power, generating electricity using landfill gas, promoting conservation and energy efficiency, installing state-of-the-art emission control technology, and funding innovative research into alternative forms of energy. Santee Cooper continues to evaluate and adjust the load forecast and resource plans as needed to meet future customer demand in a reliable and cost effective manner. Demand-side management programs are evaluated on a regular basis for their effect on energy and demand. Santee Cooper offers these DSM programs where cost effective, and has completed generation resource planning necessary to ensure a reliable generation plan to meet projected customer requirements through 2027. Santee Cooper is committed to delivering low-cost, reliable and environmentally responsible electricity to our 2 million direct and indirect customers in all 46 counties of South Carolina. Santee Cooper will remain focused on strategically advancing opportunities so that we can shape that change to our benefit, and deliver brighter tomorrows for our customers and the state.