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Santee Cooper 2008 Environmental Annual Report

santee cooper green

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From the president and CEO

As 2008 ended, Santee Cooper was working on an offshore wind research project with Coastal Carolina University and the South Carolina Energy Office. As I write this, we are deploying weather buoys off the coast of Georgetown and Horry counties, a first step to determine if South Carolina's ocean breezes can power an 80-megawatt wind farm. Later this year, Santee Cooper will build a 50-meter offshore tower — the buoys will help us decide where — to gather wind data at the elevation necessary to turn a turbine's blades.

The offshore wind study is one example of movement Santee Cooper made in 2008 towards a goal our board of directors has established for us. The goal is that by 2020, we will generate 40 percent of our energy from non-greenhouse gas resources, biomass fuels, conservation and energy efficiency. The significant progress that we have made in 2008, and the initiatives already underway in 2009, will help us get there.

For 75 years now, Santee Cooper's mission has been to serve as South Carolina's leading resource for improving the lives of all of its people. We are as committed today as we were in 1934 to doing just that, through our balanced approach to providing affordable, reliable electricity that is protective of our environment. Balance is important: We simply cannot meet all of South Carolina's energy needs through wind, solar and other renewable energy sources alone. This state cannot afford to abandon the traditional generation sources that ensure our residents, business owners and industries the supply of reliable, affordable power that is critical to our success.

Nonetheless, Santee Cooper is committed to fully exploring all practical sources of renewable energy, and building those that make sense for our customers and our state. Santee Cooper was the first utility in South Carolina to generate renewable Green Power, starting in 2001 with our first landfill generating station at the Horry County Landfill. Our record promoting conservation and energy efficiency goes back more than four decades.

Among the highlights of 2008, Santee Cooper opened its fourth Green Power landfill generating station; gave more than 800,000 energy efficient compact fluorescent light bulbs to our customers; launched a new "Power Down" campaign emphasizing conservation and energy efficiency; promoted solar generation by helping customers install residential solar panels; expanded our coastal wind study to the Baruch Institute at Georgetown's Winyah Bay; researched possible low-impact hydro generating facilities in the state; announced a 20-kilowatt solar panel installation at the Center for Hydrogen Research; and contracted for 50 megawatts of renewable biomass generation beginning in 2012.

It was a banner year for conservation and renewables at Santee Cooper, and we begin 2009 firmly focused on all that we need to do by 2020 to keep the lights on when you flip your switch.

Lonnie N. Carter
President and CEO

Santee Cooper adds fourth landfill generating station

Santee Cooper and Allied Waste in October announced the commercial operation of a 3.2-megawatt Green Power generating station at the Anderson Regional Landfill in Belton, S.C.

The Anderson Regional Landfill Generating Station became the fourth biogas-fueled facility in Santee Cooper's fleet and the second opened with Allied Waste (now Republic Waste). The two organizations dedicated the Lee County Generating Station in 2005.

The $3.8-million generating station is comprised of two Caterpillar 20-cylinder engine generators and provides enough power for about 1,500 homes. The Anderson facility joins landfill-biogas stations operating in Horry, Lee and Richland counties and brings Santee Cooper's biogas generation to 16 megawatts.

"Santee Cooper is serious about our responsibility to be a good environmental steward, and landfill biogas generation is a project with no downside," said Santee Cooper President and CEO Lonnie Carter. "We were the first utility in South Carolina to generate Green Power and are pleased to work once again with Republic Waste, who is a respected environmental steward in its industry."

Santee Cooper Vice President of Engineering and Construction Services Tom Kierspe called landfill-biogas generation a real environmental success story. "We are literally pumping methane, a greenhouse gas, from the landfill and turning it into renewable Green Power, which helps diversify our fuel mix."

The U.S. Environmental Protection Agency estimated every megawatt of power generated by a facility like the Anderson Regional Landfill Generating Station is the equivalent of removing almost 8,000 cars from area roads or planting more than 10,000 acres of trees.

The Anderson project is supported by Santee Cooper customers who purchase blocks of Santee Cooper Green Power. Residential customers can purchase renewable energy in blocks of 100 kilowatt hours at $3 each. Prices vary for commercial and industrial customers. Santee Cooper reinvests 100 percent of Green Power revenues in new or expanded renewable energy projects.

In addition to landfill generation, Santee Cooper generates solar power and recently contracted for renewable biomass energy. The utility is also exploring the potential for offshore wind energy and is evaluating the potential for new small-scale hydro facilities.

American Gypsum, Santee Cooper dedicate wallboard facility

Officials with Santee Cooper, American Gypsum and Georgetown County in August dedicated American Gypsum's new wallboard plant, built adjacent to Santee Cooper's Winyah Generating Station.

"American Gypsum has a new appreciation for 'southern hospitality," said Steven R. Rowley, president and chief executive officer of Eagle Materials, American Gypsum's parent firm. "We greatly appreciate the support. We are also thankful for the opportunity to partner with Santee Cooper to create an essentially 'green' finished product at our Georgetown plant, which combines a byproduct of Santee Cooper scrubbers [synthetic gypsum] with 100 percent recycled paperboard from our Republic Paperboard Company. We are very pleased to be able to work with the Georgetown community and Santee Cooper to manufacture a building product that benefits our environment, our economy and our communities."

Eagle Materials is the nation's fifth-largest producer of gypsum wallboard used in residential and commercial construction. In addition to Georgetown, the Dallas-based firm has manufacturing facilities in Albuquerque and Bernalillo, N.M., Duke, Okla., and Gypsum, Colo. O.L. Thompson, chairman of Santee Cooper's Board of Directors, praised the efforts of a wide-ranging group of leaders who brought the plant from concept to completion. "I am proud to be a part of this unique venture," he said. "It is the result of innovative vision and the dedication of everyone who worked to make that vision a reality."

Santee Cooper President and CEO Lonnie Carter said, "This dedication represents another indicator of sustainable economic development that helps diversify our coastal economy and respects our environment. That wallboard may look white, but believe me, it's green through and through. This is a partnership that makes us all winners."

American Gypsum has invested approximately $150 million in the facility since the project was unveiled in April 2005. The announcement was heralded as the largest economic development initiative since the steel mill came to Georgetown in the late 1960s. The environmentally friendly wallboard plant created 84 jobs and can produce approximately 750 million square feet of product annually.

"American Gypsum is a godsend for many of us who are engaged in the various facets of economic development," said Georgetown County Council Vice Chairman Johnny Morant. "The wallboard produced through American Gypsum's partnership with Santee Cooper will extend the use of our landfill, resulting in substantial savings to our citizens, while creating employment."

The environmental aspects of this partnership are significant. Santee Cooper will supply the facility with synthetic gypsum produced by scrubbing technology that reduces sulfur dioxide emissions at the utility's Cross and Winyah plants. Depending on the requirements for each wallboard product, water is combined in various formulas to create a milky, paste-like slurry.

This slurry is fed onto a giant roll of recycled paper, moved through drying ovens, cut, turned over and stacked for shipment.

Santee Cooper's combustion byproducts recycling program has been an environmental and economic success story since it began 35 years ago. In 2008, Santee Cooper recycled 1,065,506 tons of combustion byproducts.

Santee Cooper reaches renewable energy milestone

In July, Santee Cooper generated its 250,000th megawatt-hour of energy from landfill methane gas.

Santee Cooper first explored the potential for landfill-gas energy in 1995 and became the first utility in South Carolina to offer Green Power when the Horry County Landfill Generating Station came online in September 2001.

Seven years later when this renewable-energy milestone was met, Santee Cooper operated additional landfill generating stations in Lee and Richland counties and was nearing the commercial launch of a facility in Anderson County. This represents more than 16 megawatts of biogas potential. A fifth station has been announced for Georgetown County.

"Producing energy through landfill methane has been an important component of Santee Cooper's goal to advance energy efficiency, conservation and renewable power," said Marc Tye, vice president of conservation and renewable energy.

Methane is produced through the decomposition of organic materials like the solid waste found at municipal landfills. Because it's also a greenhouse gas, piping it to power generating engines creates a twofold environmental benefit.

Santee Cooper plans to eventually have 45 megawatts of landfill-biogas capacity.

"As a public power utility, our aim is to provide reliable power at reasonable rates and to do so with minimal environmental impact. Fortunately, these landfill generating stations have been a feasible and practical way for us to keep in that tradition," Tye said. "There is not enough landfill biogas for base load generation in this state, but we're happy to employ all that we can as we continue to pursue a wide range of conservation and renewable initiatives."

Santee Cooper, Rollcast plan biomass plant

Rollcast Energy in October announced plans to build a biomass facility in Newberry County, the first of its kind in South Carolina, and Santee Cooper will purchase the 50 megawatts of renewable power that it generates.

The $170 million facility will generate commercially available renewable power. It is expected to create 27 permanent jobs and be operational by late 2012.

Based in Charlotte, N.C., Rollcast Energy develops, owns and operates renewable energy power plants that use wood or biomass for fuel.

"Our goal is to produce sustainable, green power for South Carolina using the local resource of woody biomass. This area of the state offers very skilled forestry management, forestry operations and recycling companies, and we are excited to play a role in the sustainable growth of these industries," said Penn Cox, president of Rollcast Energy.

Rollcast will build and operate the facility in Newberry County, which will generate biomass from area logging residues and urban wood debris. Benefits of this renewable resource include carbon-neutral emissions and the diversion of wood waste from landfills.

"This partnership between Rollcast Energy and Santee Cooper will further the state's role in renewable energy generation while helping us meet energy demands locally. Thanks to the team effort of state and local officials, Newberry County and South Carolina will benefit from this investment now and in the future," said S.C. Secretary of Commerce Joe Taylor.

"Santee Cooper has been South Carolina's leader in renewable power generation since 2001, when we first started generating electricity from renewable landfill gas," said Lonnie Carter, Santee Cooper president and CEO. "We are pleased to be working with Rollcast, a leader in the biomass field. This venture continues our tradition of meeting the state's energy needs in an environmentally responsible way and lets us significantly grow our renewable portfolio."

Construction on the facility is scheduled to begin in June 2009, and the plant is scheduled for commercial operation by 2011. Once online the biomass plant will produce approximately 50 megawatts, enough to supply power to 25,000 homes.

"Purchased biomass energy is a logical next step in environmental stewardship for Santee Cooper and its customers," said O.L. Thompson, chairman of the Santee Cooper Board of Directors. "It also brings us closer to our 2020 goal of generating 40 percent of our energy through non-greenhouse gas emitting resources, renewables, conservation and energy efficiency."

Santee Cooper expands wind-energy research

Last August, Santee Cooper crews spent a breezy few days at the University of South Carolina's Baruch Institute in Winyah Bay, installing a 50-meter wind tower. This tower is the second of its kind to adorn the South Carolina coast, collecting wind data. Santee Cooper helped to install another at Waties Island in Horry County in the summer of 2007.

This is all part of Santee Cooper's efforts to explore the feasibility of commercial scale wind farms, and wind research towers are a vital part of the process. Santee Cooper is working with some of the best researchers in the state, including Clemson University's Institute for Energy Studies, Clemson's Restoration Institute, Coastal Carolina University, the Savannah River National Laboratory and others.

"These are just the beginnings of a foundation for wind energy," said Marc Tye, Santee Cooper's vice president of conservation and renewable energy. "This will be a lengthy process and we are in uncharted territory. We are aggressively pursuing this, because wind energy is not only a potential source of electricity, but it is renewable and emissions-free."

Not only do the towers measure wind speed and sustainability, they also test the application of SODAR technology, which is a mapping tool for a coastal environment. These offshore towers will collect data for a year, and preliminary indications are that South Carolina's only viable wind for energy may lie three to six miles offshore. These towers also are laying the groundwork for offshore wind research, which Santee Cooper will begin in 2009.

Santee Cooper launches Demonstration Wind Program

In November 2008, Santee Cooper added another green resource in hopes of brightening the blustery future of energy by installing 60-foot transmission poles equipped with wind sensors at both Georgetown High School and Coastal Carolina University's Atlantic Center. The towers have monitors that measure wind speed, direction and frequency at 45-foot and 60-foot heights.

These are the first two of four sites that are part of Santee Cooper's inland wind demonstration project.

Georgetown High School science students began downloading data from the sensors, gaining real-world experience in environmental science while helping analyze the data. Students offered their opinions about the feasibility of wind energy at the school.

"This is a great opportunity for our students to get real-life science experience on a project that could be of great benefit to our district and environment," said Dr. Randy Dozier, superintendent of Georgetown County School District. "I envision a time when our schools are powered by eco-friendly sources such as solar and wind-generated devices."

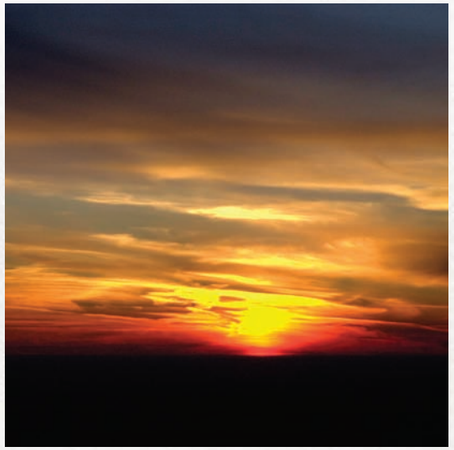
Liz Kress, principal engineer for Santee Cooper, said the purpose of the program is to find sites that can support a 1.8-kilowatt wind turbine that could be monitored and incorporated into the school's curriculum. The Georgetown High and CCU sites have not recorded viable winds, and in 2009 Santee Cooper will look closer to the coast. Whether successful or not in terms of determining viable winds, these projects are each part of a process that is vital to the future of wind energy in South Carolina.

Photo courtesy of Siemens AG

Partnership advances renewable-energy hydrogen storage

In November, Santee Cooper and the Center for Hydrogen Research announced a partnership that seeks to significantly advance hydrogen generation from renewable energy sources.

Using funds from its Green Power program, Santee Cooper provided $230,000 to the Center for Hydrogen Research for a photovoltaic (PV) solar array at the center's Education, Training and Development Laboratory in Aiken County. The aim is to further research applications of hydrogen as a storage solution for solar energy.



Because the sun doesn't shine on any fixed location for 24 straight hours, storing energy is one of the biggest obstacles preventing the widespread use of solar power. Hydrogen can be stored and transported, and so is a recognized energy storage solution that has applications for powering vehicles or electrical generation. Most hydrogen today comes from natural gas. Renewable energy-sourced hydrogen is a fast-growing research and development field across the country.

"Santee Cooper is committed to pursuing new technologies that could expand the applications for renewable energy," said Lonnie Carter, Santee Cooper president and chief executive officer. "The Center for Hydrogen Research is leading the way in South Carolina, helping discover processes through which we can store solar and wind energy for use when the sun isn't shining and the wind isn't blowing. This demonstration project also complements and enhances strategic hydrogen and fuel cell industries in South Carolina."

Fred Humes, director of the center, said, "We recognize South Carolina may not have the same solar potential as many of the western states, but solar energy can still play a major role here. The PV array will allow us to develop a baseline for the potential contribution of renewable PV energy in the production of hydrogen, especially in small quantities or in remote areas."

The PV array would convert sunlight into electricity, which would then produce hydrogen through electrolyzing water. Hydrogen could be converted back to electricity using fuel cells, and it could power hydrogen-fueled vehicles.

Gary Stooksbury, chief executive officer of Aiken Electric Cooperative, noted that the project is supported by people who are paying a premium for renewable energy. "Sales

of Santee Cooper-generated Green Power, supported by the electric cooperatives, are used to enhance and expand renewable programs in South Carolina. Aiken Electric Cooperative is pleased that our member-owners recognize not only the value of sustainable energy, but also the unique position of the Aiken area to develop potential new industries."

New program promotes solar-power incentives

Through its 2008 Solar Homes Initiative, Santee Cooper invited its customers to apply for opportunities to offset the cost of the installation of solar panel equipment.

The first of its kind in South Carolina, the Solar Home Initiative program began March 10, offering a rebate up to a maximum of $12,000 for 10 qualified homeowners. Combined with federal and state tax credits up to as much as $5,500, the program offsets cost up to $17,500 for a 4-kilowatt solar panel and its installation. A 10-year no-interest loan was also available to help finance the remaining solar panel investment.

"Through programs like the Solar Homes Initiative, we're encouraging our customers to get involved in conserving energy and invest in renewable energy sources," said Marc Tye, Santee Cooper vice president of conservation and renewable energy.

The Houghton family of Pawley's Island was the first to receive and install a solar panel. Utility representatives continue to work with the homeowners to make recommendations on energy conservation efforts, to optimize the use of solar energy produced by the new panels. The Houghtons were very excited to be the first Solar Homes Initiative participant.

"By spreading the word about our installation, we hope that other homeowners will consider solar power for their homes," said Billie Houghton.

Green Power Solar Schools program explodes in 2008

There's something in the numbers — in 2008, Santee Cooper added eight South Carolina middle schools to its Green Power Solar Schools program.

Begun in April 2007, the Green Power Solar Schools program is a partnership with local electric cooperatives and school districts to encourage interest in the environment and demonstrate the opportunities and limitations of renewable power generation.

In 2008, the following schools received a 2-kilowatt solar power system, which provides a teaching, research and hands-on demonstration opportunity for students: Carver's Bay Middle School, Chapin Middle School, Hopkins Middle School, Springfield Middle School, Aynor Middle

School, Carver-Edisto Middle School, Leslie M. Stover Middle School and Chesterfield-Ruby Middle School.

Among the cooperatives partnering were Santee Electric, Mid-Carolina Electric, Tri-County Electric, York Electric, Horry Electric, Edisto Electric, Fairfield Electric and Lynches River Electric.

"This is truly a partnership in environmental stewardship. Working together, we can learn more about how renewables, energy efficiency and conservation can play a critical role in South Carolina's energy future," said R.M. Singletary, senior vice president of corporate services at Santee Cooper. "We appreciate the leadership both electric cooperatives and the respective school districts have shown in bringing this initiative to life."

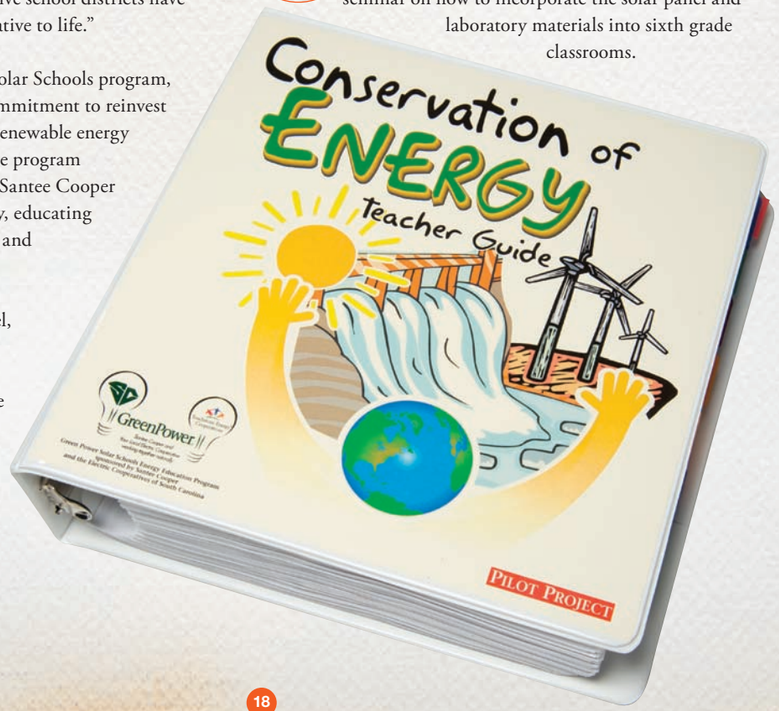
Through the Green Power Solar Schools program, Santee Cooper fulfills its commitment to reinvest Green Power revenues into renewable energy research and application. The program represents just one way that Santee Cooper gives back to the community, educating students about conservation and renewable energy.

In addition to the solar panel, Green Power Solar Schools receive a specially designed curriculum that follows state science standards for sixth graders, along with an Internet-based monitoring system that provides real-time information regarding the solar panel's performance from any Internet-enabled computer.

This online system enables students to track and compare their system's performance to others around the world. When fully implemented, the Green Power Solar School program will include a designated and equipped school in each of the state's 20 electric cooperative territories.

Turning teachers into students

As part of Santee Cooper's Green Power Solar Schools program, the utility and the electric cooperatives host teachers and administrators for a week-long seminar on how to incorporate the solar panel and laboratory materials into sixth grade classrooms.



For one week last summer, the educators became the students, learning how to maximize tools in the Conservation of Energy Kits that each sixth grade science classroom receives as a Green Power Solar School.

The Conservation of Energy Kits combine labs and lessons and contain all of the materials needed for each lab, as well as the materials needed to build a solar car.

"The future of electricity is changing, and we have to grab the bull by the horns and educate ourselves and our children about what we can do to ensure that we have enough electricity for the future, while protecting the environment," said Frank Furtick of Edisto Electric Cooperative, who attended the 2008 training with teachers from Carver-Edisto Middle School.

Stewards of the Santee Cooper lakes

The creation of the Santee Cooper lakes 70 years ago entailed the excavation of more than 42 million cubic yards of earth and the clearing of 171,000 acres of swamp and timberland. The goal in the 1930s was to bring affordable electricity to the rural reaches of South Carolina in the form of hydroelectric power, and the byproduct quickly became a treasured natural resource.

Today, lakes Marion and Moultrie occupy more than 160,000 acres of South Carolina's coastal plain, and it is the responsibility of Santee Cooper's Analytical and Biological Services (ABS) unit to help preserve their quality through a network of monitoring stations located throughout the lakes and all major tributaries feeding into and out of them.

"We have about 50 routine sampling locations throughout the lake system. Water samples are collected monthly and analyzed in the ABS Central Laboratory. There are other locations where samples are collected quarterly and biannually," says ABS Supervisor Larry McCord. He says there are about 25 parameters ABS routinely tests for, including dissolved oxygen, temperature, electrical conductivity, pH, bacteria, metals and nutrients.

Water quality data generated by ABS is made available to the South Carolina Department of Health and Environmental Control and any abnormal readings are reported directly to DHEC, which has regulatory and enforcement authority under U.S. Environmental Protection Agency water quality regulations. One example of the importance of water quality monitoring is a Total Maximum Daily Load (TMDL) study ABS has been part of for more than two years.

"A TMDL study is an intensive investigation to determine pollutants that have reached a waterbody, as well as its

possible sources," McCord says. "ABS had identified persistent elevated levels of nutrients near Santee in our monthly monitoring, and DHEC decided a TMDL study was necessary to determine the source. Once it's determined, DHEC and the other parties involved can work with property owners to reduce the sources of contamination."

McCord says an elevated level of nutrients alone can be fatal to certain aquatic organisms but also can cause abnormal growth of algae and other aquatic plants. "The algae can kill fish and other aquatic life, and the toxins in some blue-green algae can even be hazardous to humans," he says. "Overgrowth of other aquatic plants can impact several swimming, fishing and boating activities."

It's common for a TMDL study to extend beyond one year, but McCord says lack of rainfall in that area has made sample collection tough. "This is a complicated watershed that includes surface water and groundwater, therefore making it difficult to identify the source or sources of contamination," he says.

Led by the U.S. Forest Service, the study also involves the S.C. Department of Transportation, the Town of Santee, Orangeburg Soil and Water Conservation District, the S.C. Department of Parks, Recreation & Tourism, Natural Resources Conservation Service – Orangeburg District, Clemson University and the College of Charleston.

McCord says it's not unusual for ABS to collaborate on special projects with agencies at the local, state and federal levels. For another project in 2008, ABS worked with the U.S. Fish and Wildlife Service on a habitat enhancement project at the Santee Wildlife Refuge.

"They had a number of areas around their 15,000-acre refuge that were overgrown with non-beneficial vegetation. We treated these areas with herbicides to try to open them up so plants more beneficial to waterfowl could be established," McCord says.

At the same time, ABS works with several different departments within Santee Cooper.

"Our sampling crew collects storm water, pond, river and stream samples at the generating stations. Our Central Lab tests combustion byproducts for quality assurance. We test limestone that is used in the scrubbing process. We provide analysis of transformer oil for Transmission and Distribution. We also work with Fuel Procurement, testing coal and fuel oil, to ensure we're getting the quality of fuels that we're paying for," McCord says.

Santee Cooper opens second regional water system

In late April, dignitaries at the federal, state and local levels gathered in Santee, S.C., to dedicate a new treatment plant that will provide safe, reliable drinking water to as many as six counties and two municipalities along the I-95 corridor.

The program, which featured U.S. Rep. James Clyburn as keynote speaker, celebrated the opening of the Lake Marion Regional Water Treatment Plant. Clyburn has been a long-time supporter of the system, which draws water from Lake Marion. Members of the Lake Marion Regional Water Agency, the system's governing body, include representatives from the counties of Berkeley, Calhoun, Clarendon, Dorchester, Orangeburg and Sumter, the town of Santee, and the city of Sumter.

Clyburn secured most of the funding for the project, and municipal, county and state sources provided the rest. Construction began in 2004 and was overseen by the U.S. Army Corps of Engineers, whose role will continue as waterlines are constructed. Santee Cooper helped facilitate the development and construction.

"Santee Cooper is proud to have worked with the Lake Marion Regional Water Agency every step of the way," said Santee Cooper President and CEO Lonnie Carter. "We knew the process was long term, and facilitating this project is part of fulfilling Santee Cooper's mission to improve the quality of life for South Carolinians."

Santee Cooper owns, operates and maintains the treatment plant and water system for the agency.

"This is a tremendous day for the communities in the six-county region around Lake Marion that will ultimately benefit from the clean, safe drinking water this project will provide," Clyburn said. "Access to potable water is also a key component to attracting economic development along the I-95 corridor, and we are beginning to realize the investments this water project will make possible in this region."

The $35-million system includes the 8-million gallons per day (mgd) treatment plant and a 1-million gallon elevated storage tank off Interstate 95 near Santee. The facility entered commercial operation on May 1 and was providing the town of Santee with potable water by June 2. The next phase of the project includes a five-mile link from the treatment plant to the I-95 tank.

The Lake Marion treatment plant meets all state and federal drinking water standards. It is the first water treatment facility in South Carolina that uses the proprietary Zenon membrane filtration technology, a state-of-the-art filtration process for public water systems.

In 1987, the General Assembly passed legislation permitting Santee Cooper to provide water at the wholesale level. In 1994, the Santee Cooper Regional Water System's treatment plant entered service on the shore of Lake Moultrie near Moncks Corner.

Initially a 24-mgd system, the Lake Moultrie project is now capable of delivering up to 36 mgd. Four utilities serving more than 136,000 end-users receive the water: the Summerville Commissioners of Public Works, the city of Goose Creek, the Moncks Corner Public Works Commission, and the Berkeley County Water and Sanitation Authority.

Marc Tye: The elemental interview

When Santee Cooper's Department of Conservation and Renewable Energy was created in October 2007, the state-owned utility's Board of Directors also established a goal to achieve 40 percent of Santee Cooper's energy through non-greenhouse gas emitting resources, biomass fuels, energy efficiency and conservation. Marc Tye was tapped to lead this new department toward this aggressive goal. Following is a conversation with Tye in which he reflects on the department's first year.

Q: How ambitious is this 40 percent goal by 2020, and why is it in Santee Cooper's interest to endeavor toward such an undertaking?

Tye: It's a very ambitious goal. First of all, you have to change customers' behavior, which in itself is a huge undertaking. We've got to convince people this is the right thing to do and ask them to make some sacrifices in the name of reducing energy consumption. It's educating them about all the little things that can make a huge difference.

It all ties back to our mission of providing that low-cost, reliable power and improving the quality of life for the people of South Carolina. If our customers are better off through saving money and energy by conserving, we need to encourage that. If renewable power will create a better quality of life for people, then we need to pursue it.

Q: By the time the Department of Conservation and Renewable Energy turned 1 in October, it already had compiled an impressive resume of accomplishments. What are your impressions of the progress this department made in 2008?

Tye: I think we've made good progress, especially because as we moved forward we encountered some unexpected challenges. Take the Solar Homes Initiative, where we helped 10 homeowners install solar panels that could generate power for them and, in optimal conditions, extra power for us. That project also involved permitting and working with various homeowners' associations and their guidelines. The photovoltaic array is new technology in South Carolina: new to the inspectors, new to the contractors. I think we did a great job, and I'm expecting greater things in the future.

Q: Were you surprised by how unfamiliar solar power was to South Carolina?

Tye: Not really. It's still an expensive technology. Our rebate made it more affordable. At commercial scale, it's six times more expensive than conventional power. The people who signed up weren't necessarily expecting to save money on their power bills. And until renewable energy translates into affordable electricity, that's a hurdle we'll always encounter.

Q: You've talked about some of the challenges, but what about some of your successes?

Tye: One of our most successful projects began in April. That's our CFL campaign, where we offered our customers a dozen free compact fluorescent light bulbs each. So far we've given away more than 800,000 bulbs. That represents about 33,000 megawatt-hours of energy savings a year.

Our Solar Homes Initiative began about the same time. Again, that's where qualified residential customers were eligible for rebates and loans to help offset the cost associated with installing a home photovoltaic system. We just installed the 10th system.

On the renewable-energy side, we announced a contract with Rollcast Energy for 50 megawatts of biomass energy. That's a big deal and a big project for the state.

Santee Cooper brought the Anderson Regional Landfill Generating Station online in September — our fourth renewable landfill-biogas facility — and we expanded the Lee County Generating Station.

Our Green Power Solar Schools Program really took off this year, and we announced a partnership with the Center for Hydrogen Research in Aiken County to promote solar-powered hydrogen research

there. We also advanced our efforts to study the feasibility of wind energy in South Carolina, which is something we will build upon in 2009.

We might not get a lot of media play for these programs, but our customers have taken notice. In our annual customer-satisfaction survey, we saw a 12-percent increase in customers who are very satisfied with our concern for the environment. At the same time, we got high marks for our conservation efforts.

Q: Why is it important for Santee Cooper to focus resources through your department and to emphasize the direction you are taking us? How does that support Santee Cooper's mission?

Tye: We're just a piece of the puzzle. It didn't just start last year. We've been helping our customers conserve energy for more than 40 years. There's just a greater demand for efficiency and conservation nowadays, there are more tools available for us to use and promote, and this department has brought that into a greater focus for our customers.

But when you look at our goal of attaining 40 percent of our energy through non-greenhouse gas emitting resources, biomass fuels, energy efficiency and conservation by 2020, this department represents only a piece of that goal. If we don't have the goal, then we certainly don't know where we're going, and I think our board of directors took a bold step when they set it. To my knowledge, no one else in this state has even come close to a benchmark like that.

As this department moves forward, we're looking for conservation and renewable energy programs that are cost-effective for our customers and contribute to our generation of reliable, affordable electricity that is good for the environment.

Q: To what do you attribute the progress this department has made thus far?

Tye: Without a doubt, it's the employees behind these programs.

Looking at the conservation side, when you're focused on one goal and not 10, you'd be amazed what you can accomplish. Our goal is simple but important: reduce energy consumption. There are all kinds of ways to do it, and it's our job to find the best ones. Several of our employees have been involved in this work for years, and they've re-dedicated themselves to it.

On the renewables side, we had people scattered throughout the company who'd made Santee Cooper the state's leader in renewable energy before this department brought them under one roof, so to speak. Now, as a cohesive unit, they are seeing the benefits of teamwork and close collaboration in moving Santee Cooper forward.

Beyond that, the support of executive management and the Santee Cooper Board of Directors has been crucial. None of this gets done without their support. These groups expect a lot from us, and we are challenged all the time to produce practical and comprehensive plans that meet their aggressive expectations. We know what the goal is, and by staying focused I have no doubt we will reach it.

Q: Though only 16 months old, the Department of Conservation and Renewable Energy continues a tradition at Santee Cooper of embracing renewable energy, conservation and energy efficiency. Could you talk a little about that tradition and why it's been an enduring one?

Tye: People at Santee Cooper have been helping customers conserve energy and save money for a long, long time. It's just the right thing to do. A lot of that has been through educating them on the wise and efficient use of their electricity, but we also provide them the resources they need to make these changes, whether it's something like a low-interest loan that they can use to install efficient windows or a Santee Cooper representative coming to your home to do a free energy audit. It's easy for something to endure when it's the right thing to do.

Q: What are you most excited about as your department continues to lead Santee Cooper in its efforts to explore renewable energy and promote energy efficiency and conservation in South Carolina?

Tye: I'm excited about the future and meeting that 40 percent goal, and I think it will be very interesting. Things are changing so rapidly, and we're going to change along with it. When I became the head of this department, I told our team we're essentially building a power plant. We're building half of it through efficiency and half through renewables. It's more challenging to build because we've got to get our customers to build half of it for us. That's the hard part. The good news is we've got 10 years to do it, and we're on pace.

Santee Cooper's Green Power Generation Increased 13,000 MWhs in 2008

Santee Cooper's Green Power generation increased more than 13,000 megawatt-hours in 2008, a 20.6 percent increase over 2007 totals and the highest since the renewable generation program began nearly eight years ago. The statistics:

- A total of 77,003 MWhs was generated last year, including 20 MWhs from Santee Cooper's three-year-old solar panel installation at Coastal Carolina University
- This compares to 63,865 MWhs in 2007
- Santee Cooper's 16 MWs of renewable generation is enough power to light up 7,300 average-sized homes in South Carolina

"Producing energy through landfill methane and solar panels is important to our overall Santee Cooper Green plan to use renewable resources for as much of our total capacity as is economically feasible," said Marc Tye, vice president of Conservation and Renewable Energy.

The only utility in the state producing electricity through landfill gas-generating facilities, Santee Cooper began its Green Power program at the Horry County Generating Station in 2001. The station is located at the Horry County Solid Waste Authority's landfill near Conway.

Methane gas generation from landfills is part of Santee Cooper Green, an initiative to "go green" and help customers save energy and money.

In addition to the Horry County station, Santee Cooper operates three landfill gas-generating facilities in Lee, Richland and Anderson counties. A fifth facility is planned for Georgetown County. Plans are ongoing to bring additional facilities online with up to 42 MWs of total generation projected in the future.

"Although landfill methane gas cannot generate enough power to meet our growing electricity needs in South Carolina, it can contribute a portion," added Tye. "Santee Cooper continues to pursue a wide range of energy efficiency and renewable alternatives, as part of our commitment of a balanced approach to meeting the future energy needs of our customers."

iRide offers commuting alternatives that save money and reduce emissions

When Employee Relations launched the iRide commuter benefit program in September 2008, motorists were paying more than $4 per gallon of gasoline. While those prices have since fallen considerably, iRide has continued to thrive as a viable commuting alternative.

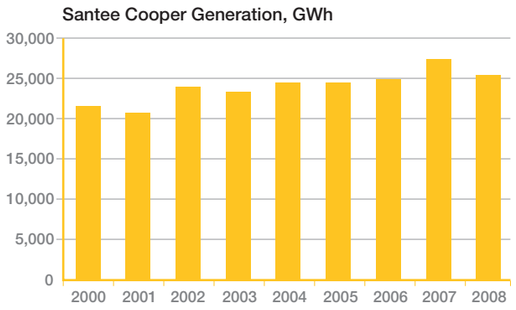
In fact, close to 200 Santee Cooper employees have participated in the iRide program in its first four months, representing 438,794 miles commuted and a savings of 145,243 pounds of carbon dioxide.

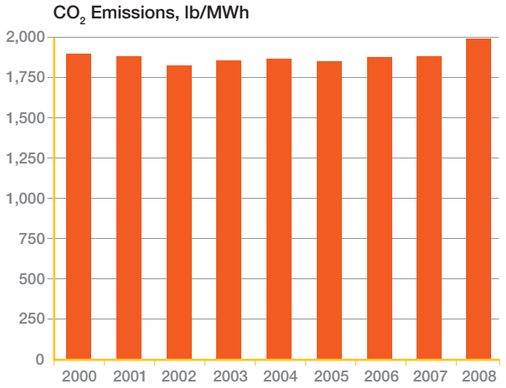
"The environmental impact of this program is tremendous," says Ray Smith, who leads the iRide implementation team. "Concern for the environment has been a longstanding tradition at Santee Cooper, and it's gratifying to see iRide become a strong component of that tradition."

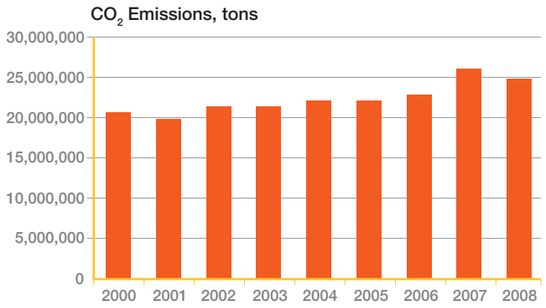
As part of iRide, Santee Cooper worked with the local bus system TriCounty LINK to create express routes in Berkeley, Charleston and Dorchester counties and established a new network of park-and-ride locations, including one at Santee Cooper's headquarters, for anyone to take advantage of. More than 70 employees purchase bus passes through the iRide program.

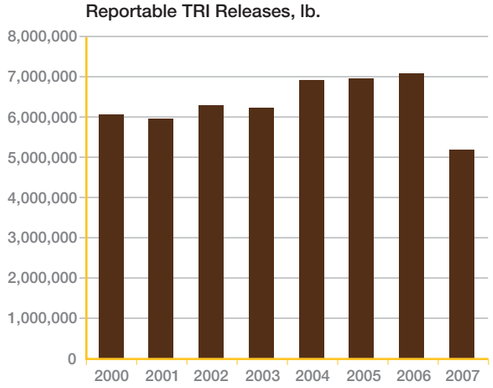
The iRide Web site lets employees log their commutes and track the pounds of carbon dioxide they save through commuting alternatives like carpooling or riding the bus. The site can help them set up carpools or vanpools with co-workers who share similar commutes.

Looking ahead, Smith says the iRide committee is still working to add bus routes to Cross Generating Station and the Horry-Georgetown area.





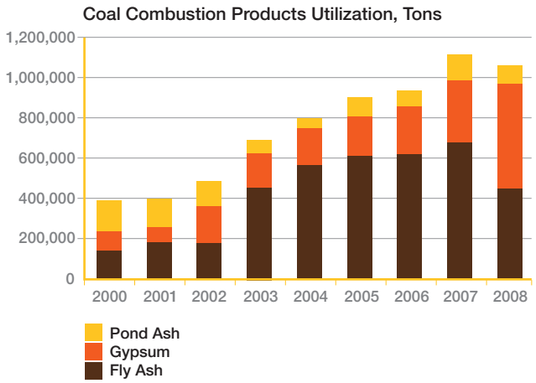


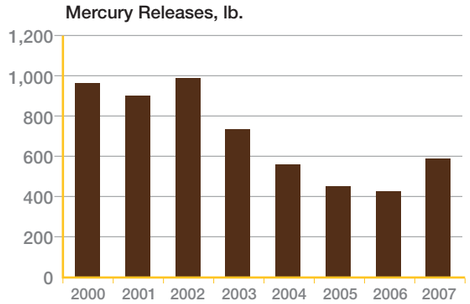


(2008 data will be available July 2009)

Carbon emissions consistent with generation

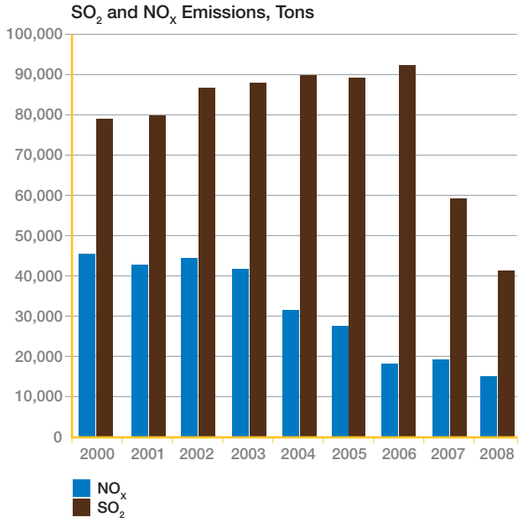
As Santee Cooper has increased its generaing capability, carbon emissions have risen accordingly. Carbon emissions rose 4 percent from 2007 to 2008, reflecting the addition of Cross Unit 4 to Santee Cooper's generating fleet.

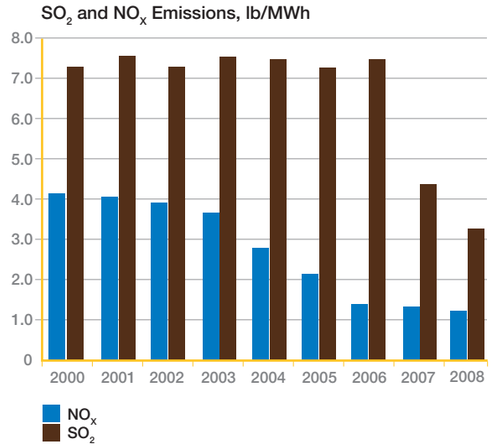




Higher mercury emissions reflect decline in combustion byproduct sales

Demand for fly ash and pond ash has declined 36 percent and 21 percent, respectively, since the economy began slowing down in 2007. Accordingly, a greater number of Santee Cooper's combustion byproducts are being landfilled. This explains the 37 percent increase in mercury emissions. (2008 data will be available July 2009)





Partnerships

American Coal Ash Association

American Council on Renewable Energy

Belle W. Baruch Institute of Coastal Ecology and Forest Science

Berkeley County Kids Who Care About Our Environment

Berkeley Soil & Water Conservation District

Calhoun Soil & Water Conservation District

Carolina Recycling Association

Carolinas Air Pollution Control Association

Center for Hydrogen Research

Charleston Chamber of Commerce Innovation/Alternative Energy Summit

Charleston Soil & Water Conservation District

City of Myrtle Beach Green Keepers

Clarendon County Chamber/Striped Bass Festival

Clarendon Soil & Water Conservation District

Clemson University Institute for Energy Studies

Coal Ash Consortium

Coastal Carolina University Burroughs & Chapin Center for Marine and Wetland Studies

Clarendon County Chamber Fishing Tournaments

EPA Coal Combustion Products Partnership

EPA Landfill Methane Outreach Program

Friends of Santee National Wildlife Refuge

Georgetown Soil & Water Conservation District

Horry Soil & Water Conservation District

Lord Berkeley Conservation Trust

National Wild Turkey Federation

Palmetto Conservation Foundation

Pee Dee River Coalition

POWER for Wildlife

Robert M. Cooper 4-H Leadership Center

Santee Birding and Nature Festival

Savannah River National Laboratory

South Carolina Aquarium/Conservation Awards

South Carolina Aquatic Invasive Species Task Force*

South Carolina Environmental Excellence Program

South Carolina Forestry Association

South Carolina Sea Grant Consortium

South Carolina Sea Grant Consortium Extension Program*

South Carolina Striped Bass Stakeholders Working Group*

South Carolina Timber Producers Association

Southeast Regional Carbon Sequestration Partnership*

St. Stephen Catfish Festival

The Big Green Bus Tour (Trident United Way)

The Climate Registry – Voluntary Greenhouse Gas Reporting*

U.S. Green Building Council

Wildlife Action, Inc.

***New in 2008**

Environmental Policy

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. To fulfill this mission, Santee Cooper is firmly committed to being a steward of 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.

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green

Published by Corporate Communications

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