POWERSOURCE

WINTER 2016 » V.C. SUMMER EXPANSION » GREENWAY » FLOOD WATERS » VOLUNTEERING

from the CEO

Santee Cooper has a long history of supporting solar power. In 2006, we were the first utility to put solar on the grid in South Carolina. In 2007, we began our successful solar schools educational program, giving middle schools around the state a 2-kilowatt solar array and state-approved educational materials. Santee Cooper introduced our Solar Homes program in 2008, unveiled the Grand Strand Solar Station in 2011, and began buying power from the new Colleton Solar Farm in 2013.

Looking ahead, Santee Cooper has announced new incentives and rebates to help customers invest in their own rooftop or community solar power. In October, our Board of Directors approved a comprehensive package with $1.7 million in incentives that will benefit residential and commercial customers who own solar panels or buy into a community solar project.

The incentive package focuses on rebates, energy credits and community solar. Our energy efficiency program, Reduce The Use, has proven that our customers respond to rebates, and RTU is on track to help customers save 209 million kilowatt hours (kWh) a year by 2020. For the new solar package, the board approved up-front rebates equaling 65 cents per watt to help residential and commercial customers who purchase panels for their homes or businesses, and for those wishing to buy into a community solar project.

The board has also approved nearly 7 cents per kWh in energy credits for excess generation we buy back from our solar customers, including a 3 cents per kWh incentive credit available to the first 500 residential, rooftop solar customers who sign up, and a nearly 4 cents per kWh credit in the Distributed Generation Rider approved by the board in August.

One of the most exciting and unique pieces of Santee Cooper's new solar program is our community solar project. Many people cannot purchase rooftop solar because they live in apartments and condominiums, have homeowners' associations that prohibit solar panels, or have roofs that are too shaded or otherwise inappropriate for solar panels. Santee Cooper is establishing our first community solar project by letting customers subscribe to our capacity in the Colleton Solar Farm, the state's largest solar farm.

Customers who choose community solar will invest in a share of the solar farm capacity, which is also subject to a rebate of 65 cents per watt applied to the buy-in cost of $2.14 per watt.

Our team is working quickly to finalize program details with rooftop and community solar, so stay tuned. We expect to roll out program specifics, including how customers can sign up, in the next couple of months.

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Equipment, such as this heavy lift derrick or crane, is an important part of the ongoing expansion project at V.C. Summer Nuclear Station near Jenkinsville, which continues a four-decade nuclear partnership between Santee Cooper and SCANA Corp. (Photo by Jim Huff)

santee cooper®

A 3,000 MILE JOURNEY DOWN THE EAST COAST

EXPLORING THE EAST COAST GREENWAY

BY SUSAN MUNGO

PHOTOGRAPHY BY JIM HUFF

Above: Avid cyclists Chris Johnson and Gregg Turbeville enjoy riding a portion of the East Coast Greenway that crosses the Intracoastal Waterway in Myrtle Beach.

IF YOU HAVE FOUND YOURSELF SEARCHING

for an environmentally friendly, safe, educational, inexpensive and physically active way to travel throughout the country, you may have run into a roadblock in your search. Now is not the time to give up. Although this may seem like some sort of utopia, it is not as impossible as it sounds. The perfect solution is quickly becoming a reality with a multi-use trail forming to connect the states that make up the Eastern Seaboard. It's called the East Coast Greenway (ECG).

A greenway is much more than just your average bike path. It's a vision that takes its creators and visitors on an epic journey through both developed and undeveloped land near urban jungles. This land is set aside for people of all ages to pursue their recreational dreams, whether they be by foot, bicycle, or at times both.

FROM CALAIS TO KEY WEST

The project was conceived in 1991 when a group of cyclists and long distance trail enthusiasts started a nonprofit organization called East Coast Greenway Alliance (ECGA). Since 1991, the ECGA has formed boards and other committees along the East Coast that provide strategic planning for the greenway. They also help each state's government with funding requests, route planning and safety concerns.

According to the ECGA, the goal is to establish a safe, traffic-free pathway that connects Eastern Seaboard cities for muscle-powered users of all abilities. The ECG will be a compilation of new and existing trails and multi-use paths that can contribute to a better way of life for those living in or visiting each of the states the greenway travels through. That better way of life includes improving public heath by offering alternatives for active and safe transportation and recreation, reducing roadway construction, lowering pollution, and creating inviting public spaces for everyone's enjoyment.

Once it's said and done, the end result will be a nearly 3,000-mile long trail from as far north as Calais, Maine to as far south as Key West, Fla.

Coordinating funding for the East Coast Greenway can be challenging since it crosses so many state, county and city lines. A mix of federal and state funds, including monies from states' recreational trails programs, along with fundraising events have so far funded the ECG. Transportation funding is limited, and the ECGA has been forming other public and private partnerships to help provide funds to complete the trail. While not as expensive to build as a road, construction, facilities, signage and maintenance expenses mean the greenway is by no means cheap. The cost per mile can be $500,000 or more depending on the area.

Virginia, North Carolina and South Carolina make up the South Atlantic division of the ECG, a region that has 954 miles of spine route. Of that, about 18 percent is complete, while the remainder is either in public control, is in development or is being negotiated. The area referred to as the spine route is the main linear trail connecting each state along the greenway. Those considered in public control are located in state parks and departments of transportation rights of way. There are also alternate routes that allow users to meander through other sections of some states, but all eventually reconnect to that state's spine route. One example is the alternate route in North Carolina that allows greenway users to encounter the beauty of the Outer Banks and the state's more coastal regions, while the spine route winds through the middle of the state.

Whichever route you take in North Carolina, the trails merge before the greenway rolls into South Carolina, another state rich in tourism and with many scenic opportunities for greenway travelers.

Clockwise from top left: Cyclists and walkers enjoy scenic Charleston Battery views from this section of the ECG; tools located at the Carolina Forest Bike and Run Park offer a quick fix for cyclists; signage along the greenway helps trail users stay on course; sun and shade make for a comfortable walk on sections of the West Ashley Greenway; Tammy Harrell gets an afternoon run in while enjoying a marsh view in Murrells Inlet.

Above:
The path on the Arthur Ravenel Jr. Bridge was key in connecting the northern part of South Carolina's greenway with its southern half.

Tanya Hawfield enjoys a challenging run highlighted by natural and urban vistas.

Right:
The green line shows the 3,000-mile spine route of the ECG from Maine to Florida.

"States in the South Atlantic region recognize the power of greenways to transform community health, increase economic development and tourism, and provide transportation choices," said Niles Barnes, South Atlantic coordinator for ECGA. "Through partnerships and increased investments in the East Coast Greenway, these states can become more renowned tourist destinations with healthier residents, a cleaner environment and a thriving economy."

Of the 254 miles that encompass the South Carolina route, all but 38 miles are complete. These greenway miles are either under development, part of an existing trail or mapped out for future trails. The route begins at the northeastern corner of the state in Little River, S.C., and hugs the coast all the way to the Georgia line, allowing travelers a taste of the Grand Strand and the Lowcountry. Trails open for travel in Horry and Georgetown counties traverse some of Santee Cooper's direct service areas including North Myrtle Beach, Myrtle Beach (with a new connection in Carolina Forest near the Horry County Bike and Run Park known as "The Hulk") and three sections of the Waccamaw Neck Bikeway trail. The route continues near U.S. Highway 17, into Charleston County, and through the town of Mount Pleasant. Once there, a separated bike and pedestrian path takes travelers across the iconic Arthur Ravenel Jr. Bridge and leads them to the West Ashley Greenway.

One main goal for South Carolina's greenway committee is to provide a way for residents and locals to safely and actively move from the suburban areas and neighborhoods into the more urban areas. The committee wants locals to become familiar with the greenway and to use it for rides, runs, taking their children out for a stroll, or even to take a trip to the store.

"The East Coast Greenway can improve the health of South Carolina residents, promote tourism, and improve the quality of life in the communities in which the route travels," said Leigh Kane, Horry County senior planner and S.C. East Coast Greenway Steering Committee co-chair. "As it continues to develop, it will

EMPHASIS ON SC

South Carolina features 11 trails designated as part of the East Coast Greenway. Each of these brings the Palmetto State closer to completing a traffic-free route through the state.

1. *North Myrtle Beach Greenway,* Barefoot Resort segment 3.1 mi
2. *Colonel Robert Bell Pass Trail,* Myrtle Beach; 1.7 mi
3. *Grissom Parkway Trail,* Myrtle Beach; 6.4 mi
4. *Harrelson Boulevard Trail,* Myrtle Beach; 2.2 mi
5. *Kings Highway Trail,* Myrtle Beach; 2.3 mi
6. *Waccamaw Neck Bikeway,* Litchfield/Murrells Inlet/Pawleys Island; 5.95 mi
7. *Ben Sawyer Boulevard Sidepath,* Mount Pleasant and Town of Sullivan's Island; 1.8 mi
8. *Garret P. Wonders Memorial Bike/Ped Lane,* Charleston-Mt. Pleasant; 2.75 mi
9. *East Bay Trail,* Charleston; 0.6 mi
10. *West Ashley Greenway,* Charleston; 8 mi
11. *New River Trail,* Bluffton; 3.2 mi

GENERATION STATION PEDAL POWER

Biking as transportation is not a new concept to Santee Cooper.

Our generating stations have been using bikes to help meet transportation needs for years. The company currently has over 150 bikes and Generation employees use pedal power to move themselves, and at times small materials, from one building to another at each site. This solution makes environmental and economic sense.

Left: Equipment Operator III Bernard Shimel uses a bike for transportation at the Cross Generating Station.

Right: Some sections of the ECG run along major highways. In contrast, the trail near the War Bird Park in Myrtle Beach offers natural settings and easy access to neighborhoods, shops and the ocean.

connect daily users and long-distance travelers to communities, nature and an array of historic, cultural, and recreational destinations that our coast has to offer."

South Carolina will make great strides in 2016 with the opening of additional trail miles and scheduled special events. In October, the ECGA will host the Week A Year (WAY) tour, a group ride that will cover the 320-mile section from Raleigh, N.C., to Georgetown, S.C. Not only will that allow travelers an up close and personal view of the Carolinas, it will also have an economic impact on the communities along the route. Cyclists will book overnight stays, dine in local restaurants and purchase goods and services from businesses near the trail.

In 2017, the WAY tour will travel through the lower half of South Carolina, highlighting expansion plans like the proposed Awendaw East Coast Greenway, a 12-mile leg envisioned to link the Buck Hall Recreation Area to the north with the Center for Birds of Prey to the south. A 10-foot-wide section of trail would run through the Francis Marion National Forest east of U.S. Highway 17. Another is a proposal to connect the end of the West Ashley Greenway, using an abandoned rail line, to Bluffton.

"We are excited about the plans for expansion in our southern counties," said Vonie Gilreath, mobility manager for the Berkeley-Charleston-Dorchester Council of Governments. "We are working toward a continuous trail that brings to light both the beauty and history of South Carolina."

Top left: The Carolina Forest Bike and Run Park is home to "The Hulk," a course designed to challenge cyclists, runners and hikers with more hills and valleys than flat, straight paths.

SAFE TRAVELS

While it seems apparent the trail will present travelers with scenic, educational and off-the-beaten-path views, some attention must be given to the hazards on the trail. Safety is an important goal. To assist travelers, the ECGA offers trail maps, trail lists, trail alerts, a list of safety rules and etiquette, and even a navigation app for iPhone and Android users to assist those traveling in unfamiliar territory.

In addition, cyclists, hikers and walkers traveling the greenway need lodging, food and at times a maintenance shop. To help out, the ECGA placed icons on maps that offer information about places to stay, eat and even get a flat tire repaired. To make them easier to find, bike shops along the trail are also on the map. In the Myrtle Beach area, the Beach Bike Shop is one of those spots.

"We often get cyclists from out of state," said Gail Bails, shop manager. "We enjoy having them come into the shop and share a little about their adventures."

Bails said they see cyclists heading both north and south. The shop assists them with their needs and gets them back on the trail.

While not yet complete, the ECG already offers a portion of what its creators envisioned – a safe, scenic path for recreation that is helping bridge the gap between neighborhoods and business areas. It is a way for anyone, young or old, to safely enjoy the outdoors in their community or explore another state. And it's an environmentally friendly way to travel and experience the entire Atlantic Seaboard.

FOR MORE INFORMATION ON THE EAST COAST GREENWAY VISIT WWW.GREENWAY.ORG

V.C. SUMMER NUCLEAR STATION EXPANSION

A NEW AGREEMENT, A CLEARER PATH TO THE FINISH LINE.

BY WILLARD STRONG

PHOTOGRAPHY BY JIM HUFF

This spread:
Up close, the construction site for units 2 and 3 at V.C. Summer Nuclear Station is a massive collection of metal and machines, and a place where thousands of workers report to work each day.

ONE OF THE BIGGEST DECISIONS A LARGE-SCALE ELECTRIC UTILITY LIKE SANTEE COOPER MAKES IS THE **CONSTRUCTION OF GENERATING FACILITIES**.

And since May 23, 2008, workers at the 32 year old V.C. Summer Nuclear Station in Fairfield County have been busy building two additional nuclear power units. It's a project of SCANA Corp., the parent firm of investor-owned South Carolina Electric & Gas Co., and Santee Cooper, the state-owned electric and water utility. The centerpiece of the massive project, which involves the world's largest crane for lifting heavy components, are two Westinghouse AP1000 reactors rated at 1,117 megawatts each.

This latest chapter in the history of two large Palmetto State electric utilities working together for their customers is yet another example of this mutually beneficial partnership. Santee Cooper owns one-third of the nearly 1,000 MW generated at Summer Station since it went into service in 1983, and receives one-third of its generating capability, about 320 MW. It has been a solid performer through the decades. SCE&G operates Summer Station with its personnel.

By building new nuclear generation that is essentially emissions-free, Santee Cooper is ensuring that its customers in Berkeley, Georgetown and Horry counties will have reliable and environmentally attractive electric power for generations to come. And just as importantly, Members of the state's electric cooperatives, which have Santee Cooper as their source of power, will also benefit.

Any multibillion dollar construction project is bound to have challenges along the way. But a recent development, announced last Oct. 27, should bring more clarity and certainty to Summer Station's expansion. It is a development that by all accounts will blaze a clearer path to the finish line in 2019, when Unit 2 is projected to enter commercial operation. Unit 3 will follow a year later.

What the Santee Cooper board authorized last fall was a change to the Engineering, Procurement and Construction (EPC) contract that provides more certainty on both the project schedule and its cost.

Below: Weighing approximately 30 tons, this structural module will be installed inside the containment vessel.

Clockwise from top: Workers peer over Unit 3's power block excavation site with containment vessel rings shown in the background; the Unit 2 deaerator is 141-feet long, 16.4-feet in diameter and weighs 365 tons. It heats and removes non-condensable gases from the condensate to prevent corrosion in the steam system; the hoist for the heavy-lift derrick is used for lifting large structural modules and containment-vessel rings.

TIMELINE OF V.C. SUMMER NUCLEAR STATION'S UNIT 2 AND 3 CONSTRUCTION

MARCH 31, 2008

SCE&G and Santee Cooper submit an application with the Nuclear Regulatory Commission for a Combined Construction and Operation License (COL). The COL, once approved, would authorize the companies to build and operate up to two new nuclear electric generating units at the utilities' existing V.C. Summer Nuclear Station site.

MAY 27, 2008

SCE&G and Santee Cooper announced a contractual agreement with Westinghouse Electric Co. LLC, and a subsidiary of The Shaw Group Inc., Stone & Webster Inc., for the design and construction of two 1,117 MW nuclear electric-generating units at the site. The estimated cost of both units is $9.8 billion, with Santee Cooper's estimated share at $4.4 billion.

MARCH 30, 2012

SCE&G and Santee Cooper announced they had received approval for Combined Construction and Operating Licenses (COLs) from the Nuclear Regulatory Commission.

By mid-2012, about 1,000 workers were engaged in early-site preparation work at the site. The project will peak at about 3,500 construction craft workers, with the creation of about 800 permanent jobs.

JAN. 27, 2014

SCE&G and Santee Cooper announced an agreement for SCE&G to acquire from Santee Cooper a 5 percent interest in the project. Under the terms of the transaction, SCE&G will own 60 percent of the new nuclear units and Santee Cooper 40 percent.

MAY 12, 2014

SCE&G and Santee Cooper announced that on May 9, the CA20 module in the nuclear island had been placed. The CA20 module will house fuel handling and storage areas as well as other important plant systems.

It has a footprint measuring about 70-feet long by 50-feet wide and stands approximately 70-feet tall — roughly the equivalent of a five-story building. With a total load weight of approximately 2 million pounds, or just over 1,000 tons, CA20 is one of the heaviest lifts on the construction site.

MAY 22, 2014

SCE&G and Santee Cooper announced that the day before, the containment vessel bottom head (CVBH) on the basemat of Unit 3 had been placed. The approximately 900-ton CVBH was lifted into place with the heavy-lift derrick.

Consisting of nearly 2-inch-thick carbon steel, the CVBH forms the base of the Unit 3 containment vessel and is approximately 40-feet tall and 130-feet wide. The CVBH is the first of five sections comprising the structure that will house the reactor vessel and other plant safety systems.

Three rings, each fabricated with multiple levels of steel plates, will follow. The containment vessel will then be capped with the top head. When complete, the containment vessel will weigh about 4,000 tons and stand more than 200 feet with a 130-foot diameter.

Approximately 2,500 construction workers are now working on Units 1 and 2.

JULY 7, 2015

SCE&G and Santee Cooper announced two recent milestones for Unit 3 that were achieved within one week: placement of the CA04 module and delivery of the reactor vessel. CA04, which is the reactor vessel cavity that will house the Unit 3 reactor vessel and related components, was placed on the containment vessel bottom head on June 29.

Just one day before, the Unit 3 reactor vessel arrived on site from the Port of Charleston.

Its submodules were fabricated in Lakeland, Fla. Welders then completed final fabrication onsite in Summer Station's 12-story Module Assembly Building. CA04 was then lifted into place by one of the world's largest cranes—a heavy-lift derrick that stands about 560-feet tall.

Approximately 3,500 construction personnel and subcontractors are working onsite.

JAN. 4, 2016

The new construction agreement becomes effective.

Above: Santee Cooper's onsite nuclear construction team is (from left) Michael Crosby, Marion Cherry, Greg Lindamood and Jason Williams.

The board gave the go-ahead for Santee Cooper President and CEO Lonnie Carter to execute a new Limited Agency Agreement with SCE&G acknowledging an Engineering, Procurement and Construction (EPC) Agreement between SCE&G and the consortium building the two units.

The amended EPC Agreement reflects that Westinghouse Electric Co. LLC has acquired the stock of Stone & Webster from Chicago Bridge & Iron (CB&I). Stone & Webster will continue to be a party to the EPC Agreement for the Summer Stations' expansion, but as a subsidiary of Westinghouse, instead of CB&I.

Westinghouse has engaged Fluor Corp. as a subcontracted construction manager. Fluor has experience with many large electric generating projects, including Summer Station's Unit 1.

The amended EPC Agreement will tie payments going forward to a milestone schedule, increase liquidated damages and add a fixed-price option that if exercised, would significantly shift the remaining financial risk to the contractors.

Under the base amendment, Santee Cooper will pay an additional $112.5 million to settle known construction cost increases agreed to last year. If the fixed-cost option is approved and executed, Santee Cooper's share of the project cost would increase again, but Santee Cooper would also receive price certainty for the balance of the construction project.

"This is a positive development in the new nuclear project, because it offers significant incentives and penalties associated with bringing the units online in 2019 and 2020," Carter said. "The new fixed-price option would limit our construction costs if we choose to exercise it. Finally, we are confident that Fluor will bring solid expertise and resources that will keep the project on track to deliver 2,200 MW of clean energy to South Carolina by 2020."

Santee Cooper presently owns 45 percent of those 2,200 MW but in the future, SCE&G will acquire 5 percent, leaving Santee Cooper with 40 percent ownership and SCE&G 60 percent. Michael Crosby is Santee Cooper's senior vice president of nuclear energy. In addition to Crosby, three Santee Cooper employees have offices at Summer Station: Marion Cherry is a nuclear construction principal; Jason Williams and Greg Lindamood are nuclear coordinators. Back at Santee Cooper's corporate headquarters in Moncks Corner, Fritz Hood and Tom Wagner support project accounting.

Essentially, this is what these men do full time, having already devoted several years toward the construction of a considerably complex machine. All agreed that the new agreement is tremendously good news for the project.

"What this agreement did," said Crosby, "was give us and SCE&G more favorable EPC contract terms and assign sole responsibility for project success to Westinghouse."

Cherry says the new arrangement shifts cost and schedule risk to the contractor, with payment only when construction milestones are met.

Simply put, Crosby said, "The contractor will be paid as progress is achieved."

"The agreement has increased cost certainty, with risk shifting to the contractor," Cherry said. "There is increased optimism for improved contract performance."

A lot of eyes in the utility industry are on this project, in South Carolina, around the nation and across the globe. All are eager to see how building a nuclear power plant in the 21st century is being done.

Perhaps no level of interest is as high as that of a federal agency whose responsibility is to ensure the project is safely built and then safely operated.

That's the job of the Nuclear Regulatory Commission. With strict adherence to construction standards, the safety of workers, plant personnel and the public, they have a tremendous oversight role. The NRC, which has full-time personnel onsite, is also at work at Southern Company's Vogtle facility, the only other nuclear power plant presently being built from scratch in the U.S. The Tennessee Valley Authority, the giant federal power agency, recently completed and got the NRC's go-ahead to put its Watts Bar Unit 2 project into service.

Crosby, Cherry, Lindamood and Williams are keenly aware of the gravity of the situation, doing their part to help guide a multibillion dollar operation. They realize they're part of a project many other engineers like them have never had the opportunity to experience.

"It's a tremendous responsibility," said Crosby. "SCE&G has a great track record operating Unit 1 and our partnership is strong from the CEO level to the plant oversight staff. We are a team dedicated to success."

The project is approximately 50 percent complete. Santee Cooper's budget for its 45 percent share of the project is approximately $5.1 billion.

This is one of four circular mechanical draft cooling towers (two per generating unit). Each tower is designed to supply approximately 300,000 gallons of water per minute, circulating water to the unit condensers for condensation of turbine exhaust steam.

"THE AGREEMENT HAS INCREASED COST CERTAINTY, WITH RISK SHIFTING TO THE CONTRACTOR. THERE IS INCREASED OPTIMISM FOR IMPROVED CONTRACT PERFORMANCE."

MARION CHERRY, NUCLEAR CONSTRUCTION PRINCIPAL

11 Days in October

BY KEVIN F. LANGSTON
PHOTOGRAPHY BY JIM HUFF

It had been a dry summer on the Santee Cooper Lakes. Inflows from upstream were down, which exacerbated the normal evaporation that occurs during the long, hot summer days. By Wednesday, Sept. 30, some of the public boat landings were designated "launch at your own risk."

Within five days, everything changed.

This spread: In response to "one of the most prolific rainfall events in the modern history of the United States," Santee Cooper began releasing water from the Santee Spillway on Lake Marion on Oct. 4.

Over the course of the next five days, from Oct. 1 through Oct. 5, South Carolina was drenched by up to 26 inches of rain, mainly focused on the central and coastal parts of the state. “Rainfall totals over 16 inches are widespread across 10 counties from Columbia to Charleston, with slightly lower totals to the north and south and in the mountains,” wrote Angela Fritz in The Washington Post on Tuesday, Oct. 6. “Spreading all of the rain water evenly across the entire state, every inch of South Carolina would be covered by 10.4 inches of rain. That’s a water volume of 5.7 trillion gallons — enough to fill the entire Great Salt Lake, and then some. Put another way, South Carolina just got a Great Salt Lake’s worth of water dumped on them.”

In what the Weather Channel described as “one of the most prolific rainfall events in the modern history of the United States,” 19 people were killed, and as many as 38,000 homes were damaged or destroyed. Statewide, 322 roads and 158 bridges were closed, including a 13-mile stretch of U.S. Interstate 95. For the first time since 1969, South Carolina Electric & Gas Co. opened the floodgates at the Saluda Dam on Lake Murray.

While it had not been 46 years since Santee Cooper released water for flood control, the prospect of spilling seemed remote in the weeks before October's historic rainfall.

“The upper lake, Lake Marion, was actually about five feet below full pool when this weather event occurred,” said Stony Martin, supervisor of system operations planning. “Although this presented challenges to some residents around the lake, Santee Cooper was very fortunate the lakes were low at the time to allow for the tremendous amount of inflows into our watershed.”

Lakes Marion and Moultrie are part of a 15,000 square-mile watershed that stretches into North Carolina. It’s the second largest watershed east of the Mississippi River. Lakes Marion and Moultrie are South Carolina's largest and third-largest lakes, respectively, but only represent about 1.6 percent of the total watershed.

“Our lakes are at the end of the line. When we’re under drought conditions, we’re not going to see a lot of water coming out of the lakes above us,” said Mark Carter, manager of construction and transportation services. “On the other hand, when it floods, all of that water is coming our way. There’s nothing we can do to stop it.”

By Sunday, Oct. 4, Santee Cooper started releasing water from the Santee Spillway on Lake Marion at an initial rate of 22.4 million gallons of water per minute. Spilling operations continued for 11 consecutive days, peaking at an approximate rate of 38 million gallons of water per minute on Tuesday, Oct. 6.

“This was the largest spilling event for Santee Cooper in 12 years,” said Chris Wagner, supervisor of system control.

Wagner and Martin work at Santee Cooper’s Energy Control Center (ECC) in Moncks Corner. ECC is the nerve center for Santee Cooper’s bulk-power operations, which includes generation and transmission. The Santee Cooper Lakes are home to three hydroelectric facilities. On Lake Moultrie, there is the 127-megawatt Jefferies Hydroelectric Station and the 84-MW St. Stephen Powerhouse. A smaller, 2-MW unit is located at the Santee Spillway.

“Because of those hydroelectric facilities, one of our responsibilities is to monitor and manage the lake levels,” Wagner said. “We track things like current lake elevations, weather conditions and forecasts, and historical lake data to develop a daily lakes forecast. We use this information to determine whether to dispatch the hydro units or release water through the spillway. This information is then fed into our overall daily generation plan.”

In situations like this, ECC is responsible for preventing the Lake Marion elevation from exceeding 76.8 feet.

“ECC manages the lake levels, so they’re evaluating when it’s prudent to release water through our hydroelectric resources or through the spillway,” Carter said. “Where we come in is when the decision is made to release water from the spillway. You just don’t go out there and start raising gates.”

The 3,400-ft. Santee Spillway was built on a sand foundation, and crews have to slowly build up the tailwater before the spill rate can be increased. Santee Cooper adjusted the spill rate several times between Oct. 4 and 14.

“It was really a busy time for all of us, not just the dam safety group, and I’m glad to have such a strong, seasoned staff that needed very little from me to respond,” said Carter, who oversees four areas, including dam safety and floodplain management.

Opposite page, from top: The Santee Spillway is part of 40 miles of dams and dikes that encircle the Santee Cooper Lakes; Stony Martin, supervisor of system operations planning; another view of the Santee Spillway; Mark Carter, manager of construction and transportation services

This page: A gantry crane can move along the 3,400 ft. Santee Spillway to lift any of its 62 gates.

This page:
A 2-MW unit sits at the base of the Santee Spillway and is one of three hydroelectric facilities on the Santee Cooper Lakes, joined by the 127-MW Jefferies Hydroelectric Station and the 84-MW St. Stephen Powerhouse.

Shea McMakin, supervisor of civil projects under Carter, leads Santee Cooper's dam safety team and is the coordinator for Santee Cooper's Emergency Action Plan for Dam Failure. On Thursday, Sept. 30, he put his team of four civil engineers and three technicians on notice to be ready to respond to any weather-related events. The next day, McMakin's staff was patrolling the 40 miles of dams and dikes surrounding the Santee Cooper Lakes.

"We had been dry, so we knew a significant rain event could pose a problem for our earthen dams," McMakin said. "A lot of our dams have clay beneath the topsoil, so they can form little cracks that will open up under large amounts of rainfall. That's when you'll see things like slides and sloughs occurring."

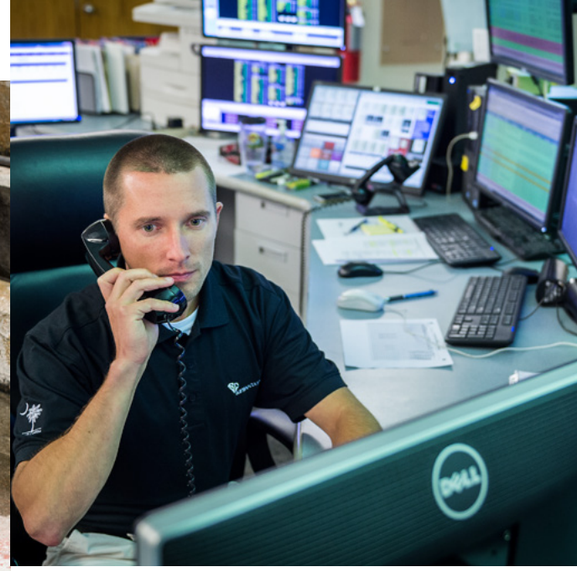
While some minor, isolated slides did occur, Santee Cooper's dams and dikes remained secure.

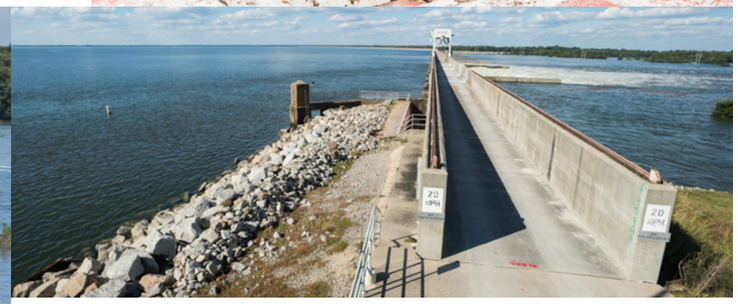
"A certain level of slides are expected with a weather event like this," McMakin said, "but the dams were never in danger. The public was never in danger."

In addition to patrolling the dams and dikes, McMakin and his staff were called in to help ECC adjust its lake forecast models.

To determine the rate of water coming in to lakes Marion and Moultrie, Santee Cooper typically monitors the flows from upstream at two points: on the Congaree River at Columbia and on the Wateree River below Lake Wateree. But this rain event was different.

"From what I've seen, historically, weather systems that come from the west tend to break up once they reach the Appalachian Mountains and the foothills. We still get rain, but maybe not at the same intensity," Martin said. "But this particular weather event originated offshore and just stalled out over us."





"It was really a busy time for all of us, not just the dam safety group, and I'm glad to have such a strong, seasoned staff that needed very little from me to respond."

- Mark Carter

Much of the heaviest rain fell locally or in the basin immediately above Lake Marion.

"It created a huge challenge for us to understand the amount of water the lakes were getting," McMakin said. "We spent several hours with ECC running models based on our historical knowledge and our knowledge of the lakes."

At the same time, ECC kept its eye on all of the rain that continued to inundate the watershed.

"We were surprised by how much water we got and how quickly it got to us," Martin said. "Typically, we can expect rain from the Columbia and Camden area to reach our lakes within five days. For this, we reduced those projections to three days."

It was an intense 11 days, and when the Santee Spillway gates were closed on Wednesday, Oct. 14, Lake Marion was estimated to be within three-tenths of a foot of its maximum elevation.

"We use a lot of science and calculations, but there is an art to spilling," Carter said. "There are many moving targets, and when the event is over you hope the lakes are at full pool, that the dams and dikes are secure, and that the public is safe. We plan for events like this, and we rose to the challenge."

This page, from left: Employees like William "David" McClary, supervisor of construction services, manually control the gates along the Santee Spillway and are dispatched by System Operator Ryan Lowell, among others at Santee Cooper's Energy Control Center, whose responsibilities include managing the Santee Cooper Lakes levels.

At left: Kearney Gregory; Linda Pickens; Nancy Morris.

With Compassion & MOXIE

by Nicole A. Aiello

Photography by Jim Huff

At almost 5 feet tall with a smile a mile wide, Nancy Morris could be typecast as the perfect grandmother.

She decorates the office for holidays, bakes cookies for birthdays and never meets a stranger. However, her diminutive frame and sugary sweet personality belie her strength and mettle. There's much more to Morris than meets the eye, especially when it comes to helping others.

Morris is just one of many Santee Cooper employees who have tenacious spirits and enduring passion for giving back to their communities. Making a difference for people, many of whom may be strangers, is a strong tie among Santee Cooper employees. Because of their compassion and a fire inside them to help others, volunteering has become a way of life for these individuals, and they wouldn't give it up for the world.

Morris is relentless when it comes to volunteering. An administrative assistant in information technology who has been a full time employee with Santee Cooper for 15 years, Morris maintains that volunteering is in her blood. She has been a volunteer with the American Cancer Society's Relay for Life for a decade and a half and was captain of Santee Cooper's Relay for Life Team for four years and its co-captain for three. She has immersed herself in almost all of their fundraisers and has helped with supplies beforehand if she can't be at the fundraiser itself. Morris also has volunteered for Santee Cooper's Celebrate The Season, which has given more than a half million dollars back to Berkeley County charities since it began five years ago.

"I volunteer because of my love for people and their needs," Morris said. "I remember several years back when I was volunteering at the American Cancer Society's 'Cancer Survivors Dinner.' I looked around the room and saw so many people there affected by cancer. I started to think, 'Why do I keep doing this year after when they never find a cure?'

"Then a survivor stood up and told her story. She thanked the volunteers for our hard work.

Above: Popcorn Wednesday is a longstanding tradition at Santee Cooper. This fundraiser for the American Cancer Society is one of the many campaigns Nancy Morris has been a part of over the years.

> ***"You should do what you love and do it because that is the right thing to do. The more you give, the better you are helping someone else."***
>
> - Linda Pickens

She said the doctors wouldn't have found the new procedure that helped them work toward her being cancer-free without our help and commitment. That story reminds me that we can each make a difference in someone's life."

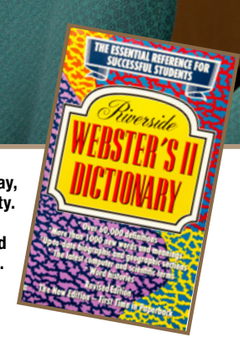
"I think I've always had compassion for people. I remember in fourth and fifth grades I'd stay inside during recess to help other children who had developmental or physical disabilities. It's just something I needed to do," Gregory said.

As an adult, Gregory began volunteering with other Santee Cooper employees because of a request from a colleague for her help with Relay for Life in 1998, the year Gregory was hired. That experience reaffirmed her passion for volunteerism and, 13 years later, Gregory turned that passion into a career.

Although Gregory loved her job and her co-workers at Santee Cooper's Jefferies Generation Station, she jumped at the chance three and a half years ago when she was offered the job of Santee Cooper's community relations representative in Moncks Corner. Since then, she has coordinated Santee Cooper's involvement in Trident United Way's Day of Caring. During the most recent TUW Day of Caring on Nov. 13, 2015, Gregory helped coordinate 26 projects with more than 150 employee volunteers. One of the best things about coordinating an event that big, according to Gregory, is being able to see firsthand the impact Santee Cooper employees have on the community.

"With my job, I have the opportunity to be engrained in the community. Because of that, I know where the needs are and I get to see how we can really make a difference," Gregory said. "Santee Cooper advocates community relations and volunteerism. We have a lot of employees in the community doing great work, and we get a lot of support from community members because we support them."

This page:
As Santee Cooper's community relations representative in Berkeley County, Kearney Gregory works with the community for a living, helping to coordinate volunteer opportunities for Santee Cooper employees. One of the largest volunteer opportunities employees engage in is the Day of Caring for Trident United Way and United Way of Horry County, where they do everything from painting, organizing and cleaning to building fences, bookshelves and park benches.



Above: Linda Pickens, a senior customer service representative in Conway, believes that together, we can all accomplish more for our community.

Right: This dictionary was given to Pickens' son in 1993 when he was in 5th grade. Pickens has helped keep alive the tradition of giving dictionaries to 5th graders at Loris Elementary for more than 20 years.

Gregory believes that by volunteering and championing those less fortunate, she's showing future generations the importance of giving back. And it starts at home.

"I have three children, ages 13, 11 and 6, and I think it's extremely important for them to see me giving back to the community, whether that is s through my job or on my own time," she said. "I believe it takes a village to raise a child and help him or her grow. It also takes a village to raise a community up and help it grow."

Linda Pickens, a 32-year Santee Cooper veteran and senior customer service representative at the company's Conway office, agrees. Pickens is the ultimate combination of seriousness and sassiness. To put it simply, she has moxie.

She has put that moxie to good use by advocating for those less fortunate for more than two decades. In addition to years of volunteering for a variety of organizations, like March of Dimes, Conway Lions Club and Habitat for Humanity, Pickens has been the business coordinator for Loris Elementary School for 20 years. She has served on the Horry County Schools Advisory Board for schools in Loris as chairwoman, assisting in the hiring of several principals and coaches for the Horry County School District.

"I enjoy helping people and that's why I am a volunteer. I am a strong believer in giving back when you can," Pickens said. "I believe I'm making a difference in the community because I've seen results in what I do. Anyone will tell you that I am always trying to help my customers and people I come in contact with, in any way I can."

Pickens especially enjoys helping children and watching them grow.

"As part of the advisory board for schools in Loris, I have been able to help children get a second chance in their educations when they misbehave in school, instead of kicking them out when things happen that are beyond their control," she said. "Some of these children have done well in life. They have families, good jobs and give back to the community. I am glad I could make a difference in their lives."

Morris, Gregory and Pickens are just three among many hundreds of Santee Cooper employees who volunteer throughout the state, and what drives them all is being able to make a difference.

"You should do what you love and do it because that is the right thing to do. The more you give, the better you are helping someone else," Pickens said. "Hopefully, that person will give back one day, too."

"...that story reminds me that we can each make a difference in someone's life."

- Nancy Morris

Right: Kearney Gregory and Nancy Morris are just two of the many Santee Cooper employees who volunteer in their communities.

Volvo Cars breaks ground in Berkeley County

On Sept. 25, Volvo Cars held a groundbreaking ceremony on the site in Berkeley County where the new car manufacturing facility will be constructed. The event was attended by many local and state dignitaries including Gov. Nikki Haley, and U.S. Senators Tim Scott and Lindsey Graham. Santee Cooper President and CEO Lonnie Carter, Central Electric Power Cooperative Chairman Lawrence J. Hinz, Volvo Cars Senior Vice President of the Americas Lex Kerssemakers and representatives from Berkeley County, readySC, the S.C. State Ports Authority, the S.C. Technical College System, and several indiviual electric cooperatives also were in attendance.

Photos by Jim Huff

Clockwise from top left:

Santee Cooper employees (l to r) Kate McCabe, Will Beasley, Eric Simmons, Russell Bramlett, and Justin Welch get an up-close look at the Volvo construction site.

A Volvo wheel.

(l to r) Former Santee Cooper employee Josh Kay; Elizabeth Warner, vice president of legal services and corporate secretary; Pamela Williams, senior vice president of corporate services; and President and CEO Lonnie Carter of Santee Cooper; Edisto Electric Cooperative's CEO David Felkel; Coastal Electric Cooperative's President and CEO Larry Hinz; Central Electric Power Cooperative's President and CEO Rob Hochstetler; Berkeley Electric Cooperative's President and CEO Dwayne Cartwright, and Trustee Michael Moore; Katarina Fjording, vice president of manufacturing, Americas, Volvo Car Group; and Sam Bennett, Santee Cooper's vice president of administration participate in the Volvo site groundbreaking.

In addition to creating as many as 4,000 jobs, Volvo Cars' plans include an investment of $1 billion at the automobile plant by 2030. Volvo announced the new plant would be the only factory to produce the next-generation Volvo S60 sedan, and the new facility will have a capacity to produce up to 100,000 cars per year.

Volvo also plans to build a museum showcasing the car company's history and future plans, and a test track for customers to take their new cars out for a test drive.

The company expects to begin hiring by late 2017, and the first Volvos built in South Carolina are expected to roll off the assembly line in late 2018. Those vehicles will be exported through the Port of Charleston.

CARTER NAMED BUSINESS LEADER OF THE YEAR

BY WILLARD STRONG

On Oct. 13, 2015, the South Carolina Chamber of Commerce named Santee Cooper President and CEO Lonnie Carter Business Leader of the Year, an award he shared with Kevin Marsh, chairman and CEO of SCANA Corp.

Carter received the honor on Nov. 12, during the chamber's 36th annual summit, with his wife, Laurie, members of the Santee Cooper Board of Directors, and many electric cooperative executives in attendance.

"I am humbled by this recognition," Carter said at the event. "I wouldn't be here without the support of many people in my life."

A native of rural Bamberg County, Carter grew up near Ehrhardt, attended public schools and went on to earn undergraduate and graduate degrees in business administration, both from The Citadel. He joined Santee Cooper in 1982 and was named president and CEO in 2004.

"I learned firsthand the needs of rural South Carolinians," said Carter. "All of this shaped my passion for economic development and business-friendly infrastructure, which fits well with Santee Cooper's mission."

In 1997, Carter was instrumental in founding and served as the first president and CEO of The Energy Authority. Based in Jacksonville, Fla., TEA is a joint power-marketing organization comprised of publicly owned utilities.

He has served on the boards of the American Public Power Association, the Large Public Power Council, South Carolina Power Team, Trident United Way, Roper Foundation, and Thornwell Home and School for Children. He has also chaired the Charleston Regional Development Alliance and the Atlantic Presbytery Executive Council.

PHOTO BY JIM HUFF

"For the past several years, I and many others at Santee Cooper have worked on a project that will benefit South Carolina for years to come: expanding V.C. Summer Nuclear Station," said Carter. "Nuclear power is safe and emissions-free. Its low operating costs and excellent reliability are key to attracting and retaining business. This project's success will be due in large part to the leadership of Kevin Marsh. Let me offer my sincere congratulations to you, Kevin, along with my gratitude for your insight, support and friendship over the years."

Santee Cooper Board approves 2016 budget

The Santee Cooper Board of Directors approved a $2.7 billion budget for 2016 at its regular monthly meeting in December. The board also approved the 2017 and 2018 budgets for planning purposes.

The 2016 budget includes $1.8 billion for the electric system, $8.3 million for the water systems and $911.4 million for capital expenditures. Approximately 43 percent of the $1.8 billion electric system budget is allocated for fuel and purchased power.

The $911.4 million for construction and capital equipment expenditures includes $643.2 million for construction of new nuclear generating units, $70.7 million for renewable generation and environmental control improvements, and $197.5 million for the transmission and distribution systems and system-wide improvements.

Incentives coming for community solar and rooftop solar

The Santee Cooper Board of Directors on Oct. 16 approved a comprehensive incentive package for customers interested in purchasing or leasing rooftop solar panels or buying into a community solar program and set in motion plans for the state's first community solar project.

The incentive package includes rebates and energy credits for customers who want to purchase panels for their homes or businesses or buy into Santee Cooper community solar projects.

The board action authorizes Santee Cooper management to finalize terms and conditions for the program, which is expected to be available to customers by early 2016. The incentive package is approved for three years and is subject to expansion depending on customer response.

Santee Cooper Board approves two-year rate adjustment

At a meeting held Dec. 7, the Santee Cooper Board of Directors authorized a two-year rate adjustment for customers in 2016 and 2017, with an average annual increase between the two adjustments of approximately 3.7 percent. The board took no action on a proposed 2018 rate adjustment.

Based on customer comments and management recommendations, the board approved minor modifications to the original rate proposal made in June 2015, specifically impacting industrial customers and outdoor lighting rentals. The board also approved modifications lowering fees for customers who install solar panels at home or work.

The rates will take effect on April 1 in 2016 and 2017, respectively. These adjustments will help Santee Cooper meet increased costs as a result of a slower than expected load growth following the latest recession and the ongoing V.C. Summer Nuclear Station expansion.

The rate adjustment affects residential, commercial, industrial, municipal and lighting customers.

Santee Cooper Board approves 2015 Series E bond sale

The Santee Cooper Board of Directors also approved the sale of $300 million in revenue obligation bonds at its December meeting.

The 2015 Series E includes $300 million in tax-exempt bonds with maturities in 2051 through 2055. The term "tax exempt" means exempt from federal and South Carolina income taxes for South Carolina residents under current law.

The all-in true interest rate for the series is 4.73 percent. BofA Merrill Lynch and Barclays handled the transaction.

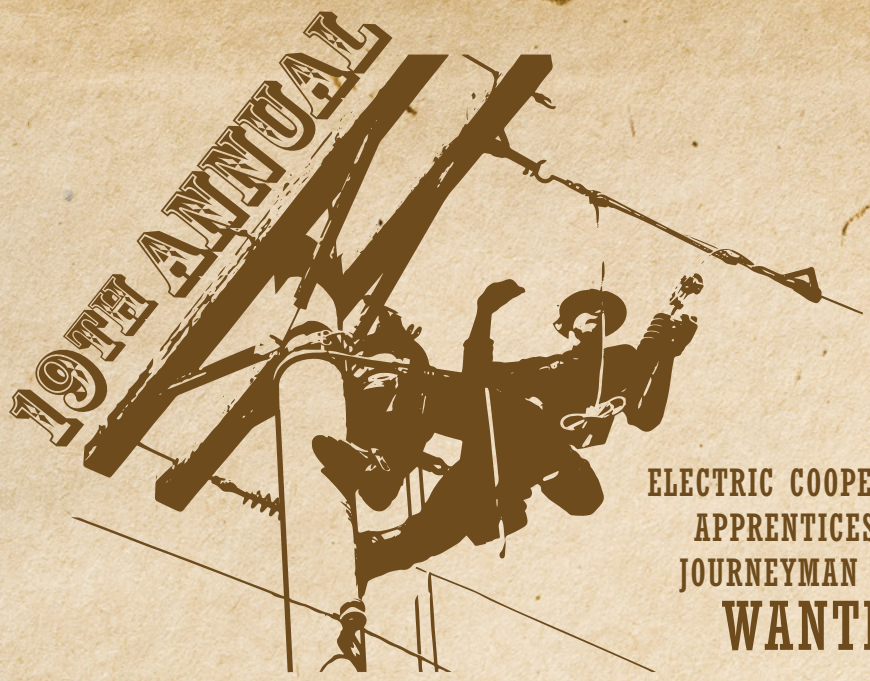
Celebrate The Season sets records in 2015

The fifth year of Celebrate The Season has proven to be record setting as 11,277 vehicles made their way through the lighted displays at Santee Cooper and Old Santee Canal Park. That's an increase of 1,401 vehicles over 2014.

A record was also set for the highest number of vehicles in one evening with 1,214 vehicles visiting Celebrate The Season and the Weekend Fair on Saturday, Dec. 12. In addition, Tinsel Trot gave around 900 participants a "sneaker preview" on Nov. 21 of Celebrate The Season's lights. That's another record with about 100 more participants than the fun run and walk had in 2014.

Proceeds from Tinsel Trot and Celebrate The Season will benefit local Berkeley County charities. Final donation amounts will be announced in February.

Photo by Jim Huff



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