

Making Electricity at the PowerHouse



Natural Resource

Just to get started making electricity, you need a whole lot of equipment and energy in the form of fuel. In this case, the fuel is coal, a natural resource. Brought in by train, Bituminous Kentucky coal is stockpiled at the station on the coal pile, waiting to be conveyed into the pulverizers, where it is ground into a fine black powder. This coal powder is the fuel that is blown into the furnace where it burns at 2,500°F.



coal pile

Process

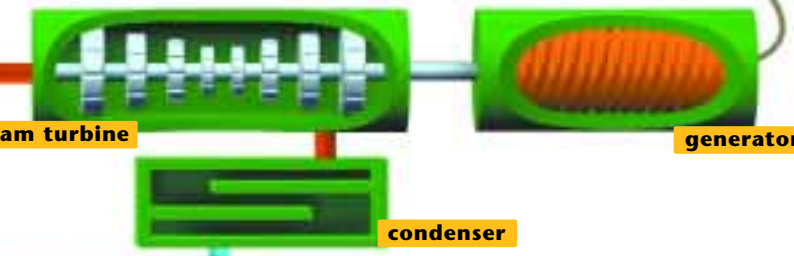
Coal powder is burned inside the furnace to heat purified water, which is flowing through a closed pipe system. The heated water inside the pipes—known as the boiler—is then converted to steam. The higher the quality of coal, the more efficiently it burns, which means the more electricity we can produce.

From the boiler, superheated steam races through the pipes at 1,000°F where it is forced under pressure through the blades of the turbine, turning them at 3,600 times every minute. The turbine then turns the electromagnet inside the coils in the generator, which produces electricity.



substation

switchyard



steam turbine

generator

condenser

boiler

pulverizer

SCR

precipitator

fly ash

scrubber

stack

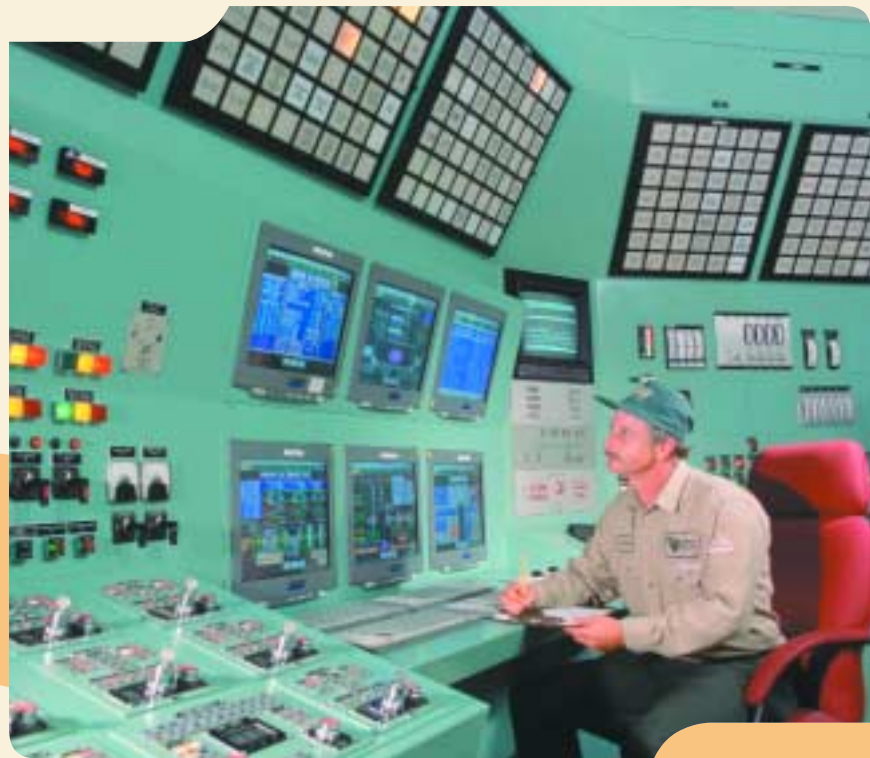
Environment

Water from our lakes and rivers that is used to make and condense steam is reclaimed through a closed system of condensers and a cooling tower. Water is used again and again in order to conserve this resource. But before it is sent back to a lake or river, it is closely tested to ensure it is clean and fresh.

Before any air is sent out of the stack, the stack gases are monitored and recorded. When the exhaust gas moves from the furnace through the control equipment and out of the system, it is cleaned in several ways. Nitrous oxides are removed in a process called selective catalytic reduction. Ammonia is sprayed into the SCR to remove about 90% of nitrous oxides from the exhaust gas.

Visible smoke in the form of particles is almost completely removed from the air with precipitators. These electro-mechanical devices use high voltage electricity to remove dust and ash from the stack gas, resulting in only harmless water vapor being seen leaving the stack. The captured ash is then recycled as a solid ingredient of cement.

Santee Cooper has also made a major investment in scrubbers, which use a wet mixture of limestone to further clean the air of sulfur dioxide. The entire process is constantly monitored on site and reported to the state and federal government to ensure that the emissions meet all Federal Environmental Protection Agency standards.



Winyah Generating Station

- Located in Georgetown, Winyah features four units capable of producing 1,155 MWs of power.
- The first unit, online in 1975, was followed by companion units placed into service in 1977, 1980 and 1981.
- Santee Cooper was the first electric utility in the Southeast to install scrubbers on Units 2, 3 and 4, devices that control sulfur dioxide emissions for cleaner air.
- Each stack at Winyah is 405 feet tall—taller than a football field is long!
- Winyah produces enough electricity to light up more than all of the households in the Columbia and Charleston areas combined!



Santee Cooper POWER
Dependable Power. Dependable People.

Santee Cooper is South Carolina's

PowerHouse

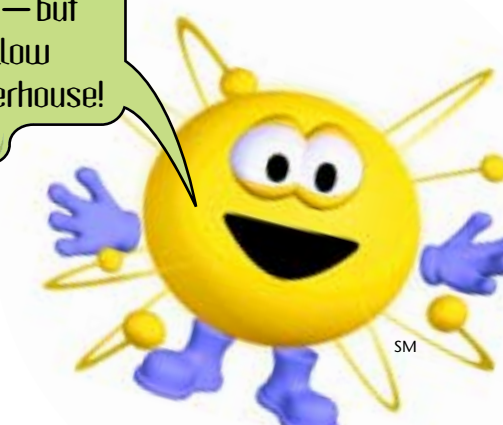
Winyah



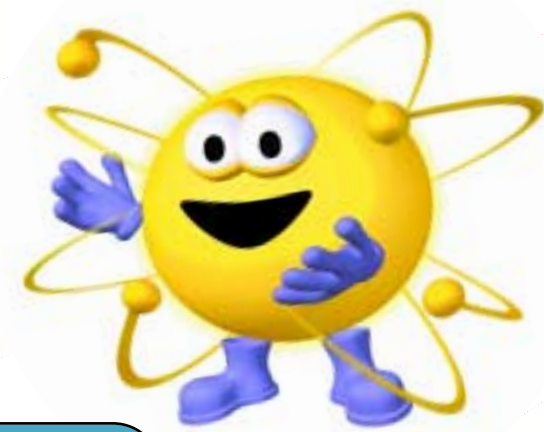
Winyah Generating Station in Georgetown, South Carolina, began operation in 1975. Winyah's four generating units produce more than 5 billion kilowatt-hours each year—enough electricity to light up more than 531,000 households.



Hi! I'm Edison the Electron—but you can call me Eddie! Follow me as we explore a powerhouse!

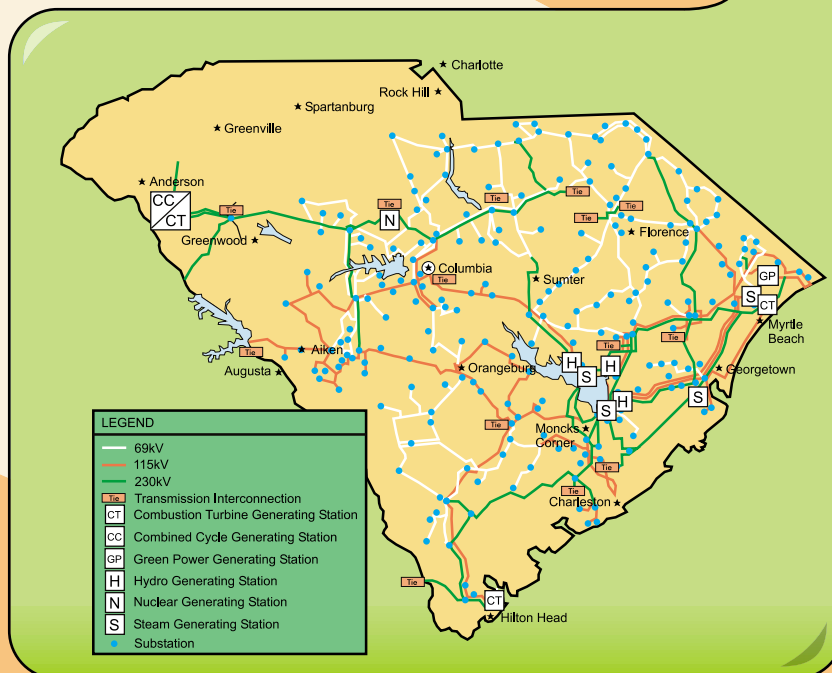


Santee Cooper is South Carolina's PowerHouse



Santee Cooper Networks

Santee Cooper is South Carolina's most powerful resource. With five generating stations, a mix of hydroelectric, steam and natural gas-fired generating stations, Santee Cooper provides dependable, low-cost electricity directly to customers in Horry, Georgetown and Berkeley counties. By connecting to a network of almost 7,000 miles of transmission and distribution lines, Santee Cooper also provides power to members of all 20 electric cooperatives in the state. Now that's really "power to the people," over 1.6 million people in all!



GOFER Sited Statewide

Santee Cooper's Give Energy for Oil Recovery (GOFER) program saves precious energy resources by recycling used motor oil. The used oil is collected in special trucks at drop-off sites across the state and is taken to be burned as fuel to make electricity. In addition to recycling used motor oil, GOFER keeps the oil from being dumped on the ground or in our sewer which can pollute our drinking water. For GOFER site locations, visit www.scgofer.org



Energy Conservation

Recycling and saving energy can save your family a lot of money. So, please, turn off the lights when you leave the room! Using electricity wisely helps Santee Cooper use less of our earth's precious energy resources to make electricity. Hey, for more ways to save energy around your house, visit our special Web site, www.scsave.com, for a whole list of energy-saving tips.

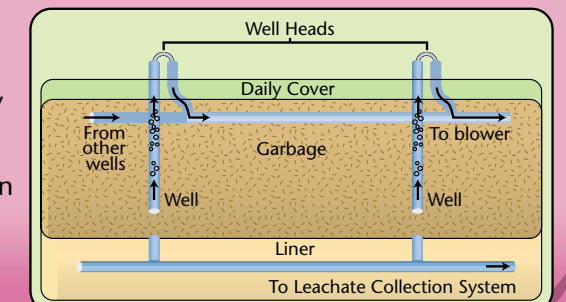


Environmental Awareness

Because so many people enjoy boating and fishing on our lakes, Santee Cooper is as committed to keeping the environmental standards high as we are to providing power at low rates. We constantly monitor air and water quality around our generating stations to ensure that we maintain standards that comply with all Federal Environmental Protection Agency regulations. Also, each year Santee Cooper sponsors an Environmental Essay Contest for seventh-grade students across the state. It gives them a chance to learn more about the world around them and to win prizes in the process!

Green Power

Santee Cooper is the first utility in South Carolina to offer Green Power. Green Power is electricity made from natural or renewable energy sources, such as wind, solar or, as in Santee Cooper's operation, gases produced by garbage decomposing in landfills. By purchasing Green Power from Santee Cooper you can help the environment.



Powerful Careers

More than 1,700 people work at Santee Cooper. They enjoy careers as line technicians, lab specialists, engineers, accountants and more. And they're challenged to apply their skills and learn more each day. To help them, employees each year benefit from the company's tuition aid program.



Science and Technology

Santee Cooper depends on powerful computers to monitor its operations and keep things running at peak performance. Santee Cooper employees put computer technology and skills in physics, mathematics and chemistry to work in their jobs every day.



A History of Public Service

In 1934, only 3 percent of South Carolina's rural residents had electricity. That's when the Legislature created Santee Cooper to provide public power to the people who lived in the small towns and farms across the state. In just 10 years, more than 93 percent of them had electric power to light their homes.



Community Action

Today, Santee Cooper does more than provide dependable power at some of the lowest rates in the nation. Through community outreach programs we sponsor education, electrical safety, energy conservation and environmental awareness programs. We work to attract more businesses and jobs to the communities we serve. For more information on our community programs, visit www.sclearn.com.

