Edwin I. Hatch
Nuclear Plant

Southern Nuclear

Georgia Power OglethorpePower MEAGPOWER Dalton UTILITIES

About Plant Hatch

Situated on the Appling County banks of the Altamaha, Georgia's largest river, the Edwin I. Hatch Nuclear Plant has the capacity to produce up to 1,848,000 kilowatts of electric power. From this region of Spanish moss and white-tailed deer, Plant Hatch's electricity courses along miles and miles of transmission lines to distribution points — homes, factories, businesses and schools — all across the state.

As Georgia's first nuclear-powered electric generating station, Plant Hatch has supplied an average of more than 8 percent of Georgia's total electricity needs since it began operating in 1975. Managed and operated by Southern Nuclear, the plant is owned by Georgia Power, Oglethorpe Power (power supplier to 38 of Georgia's 42 consumer-owned electric membership corporations), the Municipal Electric Authority of Georgia (comprising 49 member participants) and Dalton Utilities. These co-owners of Plant Hatch provide electricity to more than 2 million Georgians in all but four of Georgia's 159 counties.

Construction of the plant began in 1968. Unit 1 began commercial operation in December 1975, and Unit 2 began commercial operation in September 1979. In January 2002, the Nuclear Regulatory Commission (NRC) issued new, extended operating licenses for the Plant Hatch units. This enables units 1 and 2 to operate an additional 20 years until 2034 and 2038, respectively. Plant Hatch was the first boiling water reactor in the U.S. to receive approval for new, extended licenses.

Plant Hatch sits on a 2,244-acre tract that accommodates two reactor units in massive containment buildings and eight cooling towers, a turbine room the size of two football fields, a state-of-the-art control room, an environmental lab, a high-voltage switch yard and substation, and our Energy Education Center that is open to the public all year for scheduled tours. Almost 900 people – including engineers, mechanics, reactor operators, lab technicians, instrument and control technicians, electricians and security officers – oversee the plant's operations and maintain its system and facilities.

How Nuclear Power Plants Operate

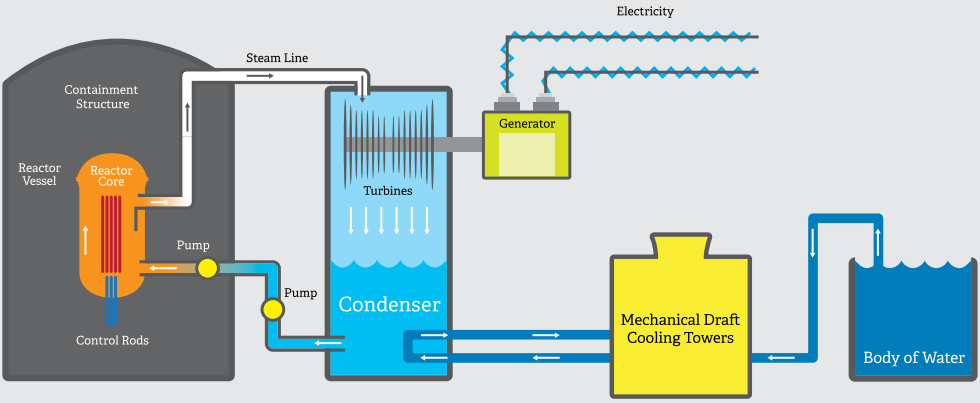
Most power plants generate electricity by heating water to produce steam. This steam spins the propeller-like blades of a turbine connected to the generator shaft. The electrical current from the generator is then fed to a network of wires (the electric grid) and delivered to consumers.

While fossil power plants generate steam by burning oil, gas or coal, nuclear power plants generate steam with the use of ceramic pellets made from uranium or other fissionable elements. The cylindrical pellets, each about the size of the end of your little finger, are arranged in long vertical tubes within the reactor. Many tubes are bundled together to form a fuel assembly. Control rods can be inserted in the fuel assemblies. These rods regulate a process called fission in splitting atoms. As the atomic pieces split, they generate heat. Operation of the reactor is controlled by varying a number of parameters, including the number of control rods and the degree to which they are inserted or withdrawn.

After the steam turns the turbine, it is funneled into a condenser to be cooled into liquid again and sent back through the reactor to make more steam. This way, in a closed cycle, the same water is used over and over again.

At Plant Hatch, a separate, non-radioactive loop of water drawn from the Altamaha River serves as the coolant in the condenser. After its trip through the condenser, this cooling water is pumped through the plant's huge cooling towers until it cools off enough to be run through the condenser again.

Boiling Water Reactor (BWR)



This simplified diagram shows how the steam generating process works.

Public Safety

Safety is the top priority of the U.S. nuclear energy industry. We take very seriously our obligation to protect the health and safety of our employees, the public and the environment.

Securing Our Facilities

Prior to Sept. 11, 2001, nuclear power plants were already the most secure facilities of any industrial sites in the nation. Since Sept. 11, the nuclear power industry has taken a number of significant steps to reinforce and enhance our security measures, including increased personnel, training, technology and barriers – spending an additional $1.2 billion on security throughout all commercial nuclear power facilities in the United States.

Nuclear power plants are an important component of the nation's critical infrastructure and have been designed with multiple layers of protection, including structural strength, highly trained operators and proven emergency plans.

The NRC holds nuclear power plants to the highest security standards of any American industry. And of the 17 infrastructure categories currently under evaluation by the U.S. Department of Homeland Security, the nuclear reactor sector is by far the best protected. Furthermore, the nuclear reactor sector is used by Homeland Security as its security standard.

Emergency Planning

Comprehensive plans have been developed in accordance with federal requirements by the NRC and other oversight agencies to respond to an emergency at any of the Southern Nuclear-operated facilities. Southern Nuclear has overall responsibility for the emergency plan, which involves Southern Nuclear, Georgia Power and the various county, state and federal agencies.

The emergency plan specifies the procedures, personnel and equipment, which would be used to classify an emergency, to define and assign responsibilities and to outline an effective course of action for safeguarding personnel, property and the general public.

These plans are updated regularly and maintained at all times. Drills and exercises are conducted annually to test these plans and to train and test personnel on following procedures correctly.

Should an emergency occur, one of the first steps would be to notify off-site authorities such as the Georgia Emergency Management Agency, NRC and local officials. Communication would be maintained with these agencies to keep them fully aware of the emergency status, including on-site and off-site radiological information.

FLEX Strategy

Following the earthquake and tsunami that impacted the Fukushima Daiichi Nuclear Plant in March 2011 in Japan, industry leaders in the U.S. worked together to develop a flexible, diverse coping strategy that would protect U.S. plants against extreme events. The strategy, which is called FLEX, includes built-in safety systems at the plant. It also adds portable emergency equipment such as generators, battery packs, pumps, air compressors and battery chargers to the plant site. With this backup equipment that is stored in a dome on site, the plant has greater capability for ensuring power and water are available to maintain key safety functions. In the absence of AC power from built-in safety systems, this equipment can be deployed quickly by plant employees. It would be used to maintain reactor core cooling, used fuel pool cooling and containment integrity. This equipment provides the greatest safety benefit to the plant in the shortest amount of time.

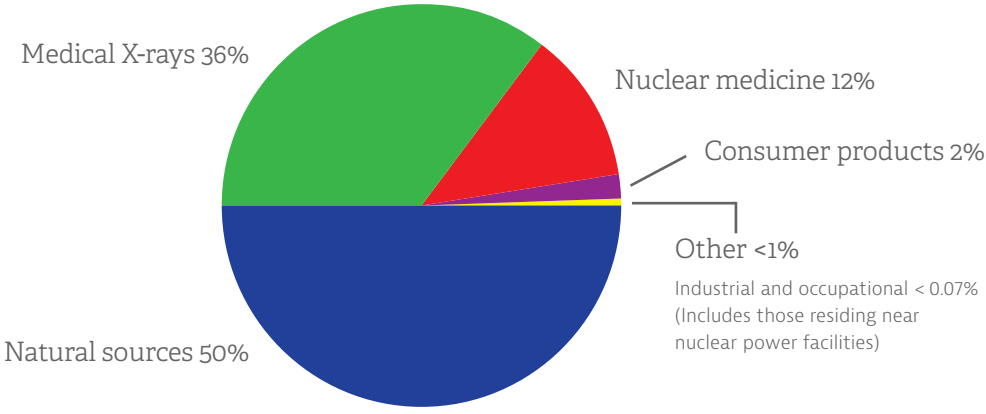
The FLEX strategy also has a third component – two emergency response centers, one in Memphis, Tenn. and one in Phoenix. Each of these secure, 80,000-square-foot facilities has five sets of equipment that can be transported by truck or air to a plant site anywhere in the United States in 24 hours. The equipment at the centers is the same as the equipment that's stored in our dome. It would only be sent if something happened to our on-site equipment during an extreme and unexpected event. This backup equipment – both at the emergency response centers and here at the dome – ensures that plant operators can maintain key safety functions even if off-site power sources are curtailed.

Radiation

The combined effect of the structural, mechanical and human safety systems built into our nuclear plants means that a person living within a few miles of its reactors receives less radiation from its presence than from watching a color television.

Radiation absorbed by the human body is measured in millirem. The average "background" radiation from our natural environment (sunlight, food, rocks, soil) adds up to around 250 to 300 millirem a year, depending on where we live. Other man-made sources of low-level radiation add greatly to this total.

Exposure to Radiation



A typical chest X-ray is about 10 millirem of radiation; a jet airplane flight from New York to California and back again adds 5 millirem. Living within a 5-mile radius of a nuclear power plant will give less than one millirem of radiation exposure per year to an individual. The average person will receive less than one millirem of radiation exposure per year from watching color television. Federal regulatory agencies carefully set and enforce dose limits to protect the public, the environment and plant employees.

Defense in Depth

Nuclear power plants are designed with many redundant safety systems, sometimes called "defense in depth." Fuel pellets, which are about 4.2 percent fissionable U-235, are sealed in zircaloy tubes. The fuel assemblies are then

contained in a reactor vessel, which has six inch-thick steel walls and weighs 505 tons. The vessel is contained in a "drywell" fabricated of 1.5 inches of steel. The drywell is surrounded by five feet of reinforced concrete. All of this is housed in a reactor building. There are several redundant cooling systems that minimize the possibility of overheating the reactor core. A nuclear reactor, such as Plant Hatch, operating at full power can be shut down in a few seconds by rapidly inserting control rods to stop the fission process.

New Nuclear Plant Development

Southern Company, Southern Nuclear's parent company, has a long-range generation-planning process that seeks to identify the most cost-effective, reliable and environmentally responsible fuel sources to meet growing electricity demands in the areas we serve. Nuclear power is a proven technology that is a viable generating source.

Increased demand for energy is driving the need for new baseload capacity. The population of the southeastern United States continues to expand rapidly, and according to the U.S. Department of Energy, 40 percent of the U.S. population will live in the Southeast by 2030. The state of Georgia alone is expected to grow by 4 million people by 2030.

As energy needs grow in the southeast, Southern Company intends to be on the forefront of exploring nuclear energy as an option for meeting rising electricity demand. The process to build two new reactors at Plant Vogtle is well underway.

7

The Nuclear Advantage

Nuclear energy is a safe, reliable, cost-effective form of energy. Since 1974, Southern Company has operated nuclear plants safely and reliably. The average three-year capacity factor of our nuclear power plants is more than 90 percent. Capacity factor is the percent of time the unit is available to provide power to the electrical grid. Nuclear power has a low production cost compared with other fuel sources. Uranium is used as nuclear fuel, and it has less price volatility than other fuel sources such as coal and natural gas.

Nuclear power adds diversity to our energy portfolio. Twenty percent of the nation's electricity is supplied by nuclear power. Behind coal and natural gas, it is the third leading source of electricity. The use of nuclear power increases our independence by decreasing our dependence on foreign oil.

Nuclear power produces no greenhouse gases, making it a sound, environmentally responsible fuel source. Nuclear power accounts for three-quarters of all emission-free electric generating capacity in this country.

Protecting Our Environment

Plant Hatch's Commitment to the Environment

Plant Hatch is committed to the protection of the environment and the enhancement of wildlife. In 1987, a formal land management plan was developed for the plant. This plan focused on management of timber on the approximately 1,414 acres of forested land, but also contained considerations for management of wildlife in timber areas and protection of wetland areas to enhance wildlife habitat.

Since 1994, Plant Hatch has been recognized as a certified member of the Wildlife Habitat Council. The council is a non-profit international organization dedicated to protecting and enhancing wildlife habitat.

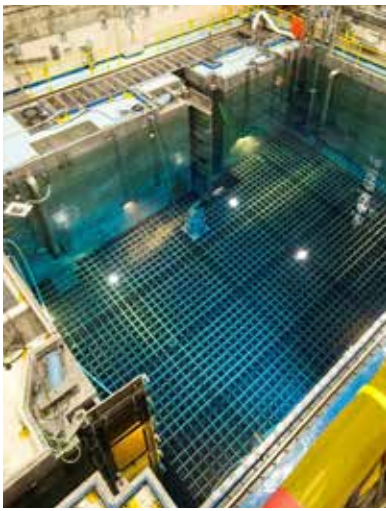
Plant Hatch management programs include timber management activities, prescribed burning, selective mowing, planting of food plots for deer and turkey, and management of habitat for songbirds, raptors, bats and fox squirrels. Through the wildlife management program the plant maintains nesting boxes for barred owls, wood ducks, kestrel hawks and a nesting platform for osprey. Plant Hatch employees also participate in the bluebird nest monitoring programs from March to September of each year.

Storage of Used Fuel

A solid material, used nuclear fuel is safely stored at nuclear power plant sites, either in steel-lined, concrete pools filled with water or in steel or steel-reinforced concrete containers with steel inner canisters. The first on-site storage method is referred to as the spent fuel pool. The second is called dry storage.

Spent Fuel Pool

When most of the U-235 has been used in the fission process, the fuel assemblies are removed and replaced with new fuel assemblies. At most plants, used fuel is stored in large, steel-lined, concrete pools filled with water. These pools are known as spent fuel pools. Both water and concrete are excellent radiation shields. In these spent fuel pools, the water acts as an absorber and prevents radiation from escaping from the pool. The water also keeps the fuel cool while the fuel decays or becomes less radioactive over time. The water itself never leaves the inside of the plant's concrete auxiliary building.



Spenf fuel pool

Dry Cask Storage

Under the Nuclear Waste Policy Act of 1982, the U.S. Department of Energy is the federal agency responsible for the disposal of high-level waste such as used nuclear fuel. After decades of exhaustive scientific and engineering research, a

permanent repository for the used fuel still has not been established.

The government's delay in providing a permanent repository for used nuclear fuel means that nuclear plants must store more used fuel than expected and store it for longer than originally intended. Since 1986, dozens of U.S. nuclear plants have supplemented their storage capacity by building above-ground dry storage facilities. Other countries also have safely and successfully stored used fuel above ground since the mid-1970s.

All of Southern Nuclear's plants use dry storage. Dry storage containers are cylindrical containers constructed of steel or steel-reinforced concrete and lead, which serve as proven, effective radiation shields. These containers effectively shield the radiation as used fuel continues its cooling process. Once loaded with used fuel assemblies, the containers are stored either horizontally in a concrete vault or stored upright on a thick concrete pad.

Each dry storage container design must be approved by the NRC. The agency requires that dry storage containers be constantly monitored. The initial license to use dry storage containers is issued by the NRC, and every 20 years this license must be renewed. The containers are designed and tested to prevent the release of radiation under the most extreme conditions – earthquakes, tornadoes, hurricanes, floods and sabotage – and they are naturally cooled and ventilated.

Nuclear plants were designed to store at least a decade's worth of used fuel. And, with dry storage, the NRC has determined that used fuel can be safely stored at plant sites for at least 30 years beyond the licensed operating life of the plant. While used nuclear fuel can be safely stored on-site, Southern Company and the industry maintain that a permanent underground repository is the best, long-term solution.

Dry cask storage

These storage areas are well protected by a combination of sturdy plant construction, state-of-the-art surveillance and detection equipment, as well as

by armed, well trained paramilitary security forces.

Owners and Operators

Southern Nuclear, headquartered in Birmingham, Ala., operates Southern Company's six nuclear units at three locations: the Alvin W. Vogtle Electric Generating Plant near Waynesboro, Ga., the Edwin I. Hatch Nuclear Plant near Baxley, Ga., and the Joseph M. Farley Nuclear Plant near Dothan, Ala. Plants Vogtle and Hatch were built by and are co-owned by Georgia Power, Oglethorpe Power Corporation, the Municipal Authority of Georgia and Dalton Utilities. Together, these two nuclear power plants generate approximately 20 percent of Georgia Power's electricity. Plant Farley was built and is owned by Alabama Power, and the plant generates approximately 20 percent of Alabama Power's electricity.

With more than 9 million customers and approximately 44,000 megawatts of generating capacity, Atlanta-based Southern Company (NYSE: SO) is the premier energy company serving the Southeast through its subsidiaries.

Southern Company and its subsidiaries are leading the nation's nuclear renaissance through the construction of the first new nuclear units to be built in a generation of Americans.

Southern Company has been named by the U.S. Department of Defense and G.I. Jobs magazine as a top military employer, recognized among the Top 50 Companies for Diversity and the No. 1 Company for Progress by DiversityInc and designated as one of America's Best Employers by Forbes magazine.

Plant Hatch contributions to the nuclear industry have been recognized with a variety of awards and honors. Hatch received the 2014 Top Industry Practice (TIP) Vendor Award for the STINGER Automated IV VI Inspection System; the 2016 TIP Vendor Award for the Core Shroud UT and Boat Sample; and the 2018 TIP GE Vendor Award for two accident tolerant fuel (ATF) products: ARMOR Fuel Rod Protection (abrasion and oxidation resistance) and IronClad ATF fuel cladding technology in a reactor. The American Nuclear Society Operations and Power Division presented Hatch the 2016 Utility Achievement Award for Outstanding Improvement in Performance for improved performance in

clearance and tagging which significantly contributed to a record-setting spring 2016 outage.

The plant is committed to supporting surrounding communities each year. In 2017, the Santa Bag employee committee raised $11,000 to purchase Christmas gifts for 330 students in schools throughout Appling, Jeff Davis, Tattnall and Toombs Counties. In 2018, the Hatch North American Young Generation in Nuclear (NAYGN) and Women in Nuclear (WIN) chapters supported the Boys and Girls Club of Toombs County, Paul Anderson Youth Home, Meals on Wheels, Relay for Life and the SNC STEM Summer Academy with financial contributions and volunteer time. Plant Hatch has been a long-time pacesetter in the local United Way campaign efforts and contributed more than $85,000 in 2018. Also that year, the SNC Hatch Charitable Committee Campaign awarded $56,500 to local STEM programs and other 501c3 non-profit organizations focused on improving lives and communities throughout the surrounding counties.

Plant Hatch Energy Education Center

Visit the Plant Hatch Energy Education Center and experience Georgia's first nuclear energy generating plant. Call in advance to book your tour at 800.722.7774.

Edwin I. Hatch Energy Education Center

11036 Hatch Parkway N.
Baxley, GA 31513
800.722.7774

Follow us on social media.

southernnuclear.com

Southern Nuclear