



FOR A CLOSER LOOK



For a closer look at Oconee Nuclear Station, visit the World of Energy. Take a journey through the self-guided Story of Energy and learn how electricity is generated using water, coal and uranium. Get up close to models that demonstrate how the nuclear station works and play interactive games that will test your knowledge of electricity.

You can also enjoy a quarter-mile nature trail by the lake or wander through the butterfly garden.

All activities are free.

Monday through Friday:
9 a.m. to 5 p.m.

Saturday and Sunday:
Noon to 5 p.m.

1-800-777-1004

Closed New Year's Day,
Thanksgiving, Christmas Eve,
Christmas Day

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OCONEE NUCLEAR STATION



QUICK FACTS ABOUT OCONEE NUCLEAR STATION:

Station cost: \$500 million

Groundbreaking: 1967

Commercial operation:
Unit 1 – 1973
Units 2 and 3 – 1974

Fuel: Uranium dioxide

Number of units: 3

Reactor type:
Pressurized Water Reactor

Station capacity:
2,538 megawatts

Turbine generator
manufacturer: General Electric

Steam generators
manufacturer: Babcock and
Wilcox Canada
weight: approx. 470 tons
length: approx. 73 feet

Reactor vessel:
steel walls – over 8
inches thick
weight – over 660 tons

Containment building:
Walls – 3.9 feet thick,
reinforced concrete
7/8 inch thick steel liner

Oconee Nuclear Station has been providing safe, reliable and economic electricity to the Carolinas since 1973.

Oconee was the first nuclear station designed, built and operated by Duke Energy. The station is located on Lake Keowee in Seneca, South Carolina, eight miles north of Clemson.

Since it began operating, Oconee has safely and reliably generated more than 500 million megawatt-hours of electricity – the first nuclear station in the United States to achieve this milestone. With a generating capacity of approximately 2.6 million kilowatts, Oconee is one of the nation's largest nuclear plants.

Oconee earned the further distinction of being just the second nuclear station in the country to have its license renewed by the Nuclear Regulatory Commission for an additional 20 years.

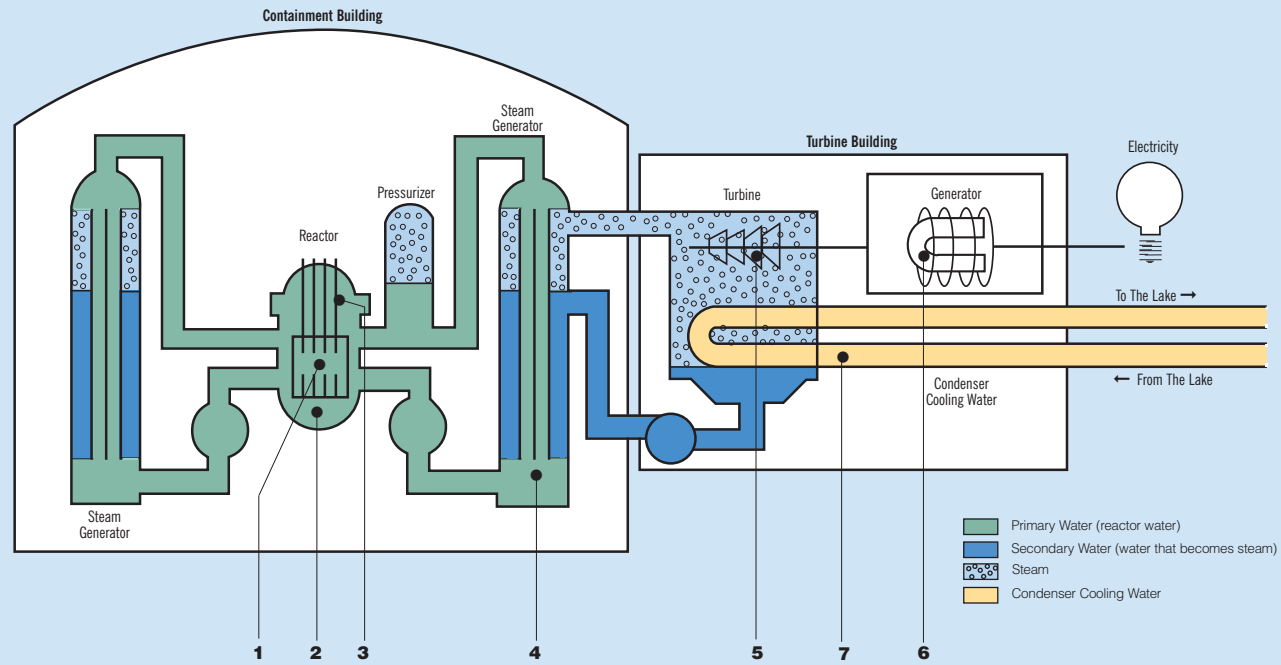
All U.S. reactors are initially licensed by the NRC for 40 years.

SAFETY

Operating the station safely is paramount. Our focus on performing safe, quality work is a value embraced by all station teammates.

The plant was designed and built with redundant safety systems. It is subject to a rigorous safety program that includes oversight by the Nuclear Regulatory Commission. Continuous preventative maintenance, plant upgrades, and our highly skilled, trained nuclear professionals ensure Oconee operates safely.

HOW OCONEE MAKES ELECTRICITY



Oconee generates electricity similar to a coal-fired power plant. The difference is the source of heat. Uranium 235, replaces coal as the heat source. A single fuel pellet, less than an inch long, produces the energy equivalent to a ton of coal. Fissioning, or splitting, of uranium atoms, creates a chain reaction inside the reactor that produces heat. The heat turns water to steam which is then used to drive turbine generators.

HERE'S HOW IT WORKS

There are three separate systems of water at Oconee. Water in one system doesn't touch water in another system. The first system is the primary water system (shown in green). It circulates around the nuclear fuel, called the core (1). As it flows through the reactor (2), it heats to about 600 degrees F. Because the water is under very

high pressure, it does not boil. The reactor can be quickly shut down by lowering the control rods (3). The heated primary water next flows through tubes in the steam generators (4). There it gives off its heat to the secondary water system (blue). It is then pumped back to the reactor to be heated again. Water in the secondary system is changed to steam (light blue) in the steam generators. The steam spins a turbine (5) connected to an electric generator (6) and produces electricity. As the steam leaves the turbine, it falls on pipes (7) carrying condenser cooling water in the third system (yellow). This water comes from Lake Keowee. As the steam hits the outside pipes, it is changed back to water. It is then pumped to the steam generators to be heated to steam again.

NUCLEAR SECURITY

Safety and security are the highest priority at all Duke Energy operated nuclear power plants, which operate at a very high level of security every day. Nuclear security continuously evaluates training needs and upgrades security equipment to ensure the highest level of protection of the stations.

Oconee was designed and constructed to withstand tremendous physical forces such as earthquakes and tornados. The plant has redundant safety systems and multiple barriers to protect the public and employees.

The containment buildings that house the nuclear reactor are many times stronger than typical office buildings and skyscrapers.

Nuclear stations have numerous security features, both visible and unseen. These include being guarded 24 hours a day by armed, well-trained security forces; physical intrusion barriers consisting of concrete structures and razor wire fences; and advanced surveillance equipment that continually monitors the areas surrounding the plant.

Plant access is tightly controlled by both security forces and sophisticated security devices, such as palm recognition screening and weapons and explosives detectors. Nuclear employees must pass stringent background investigations, psychological evaluations and drug and alcohol screenings. Employees and contractors are subject to continual monitoring and screening.

Our nuclear security programs are evaluated for effectiveness on a regular basis by both the company and the U.S. Nuclear Regulatory Commission (NRC).

CONSERVING RESOURCES

Did you know nuclear power is one of the cleanest ways to produce electricity? Nuclear power plants do not burn fuel. Instead, they use fissioning uranium atoms to produce the heat needed to operate the plant.

Nuclear power plants do not produce airborne emissions like carbon dioxide, sulfur dioxide or nitrogen oxide. In fact, the emissions prevented by generating electricity at U.S. nuclear power plants are equal to emissions from approximately 130 million cars.

Using nuclear power has helped to use fossil fuels more sparingly. Over the past 30 years, nuclear power has reduced the use of oil for electricity by more than 23 billion barrels.

