

ALVIN W. VOGTLE

Electric Generating Plant



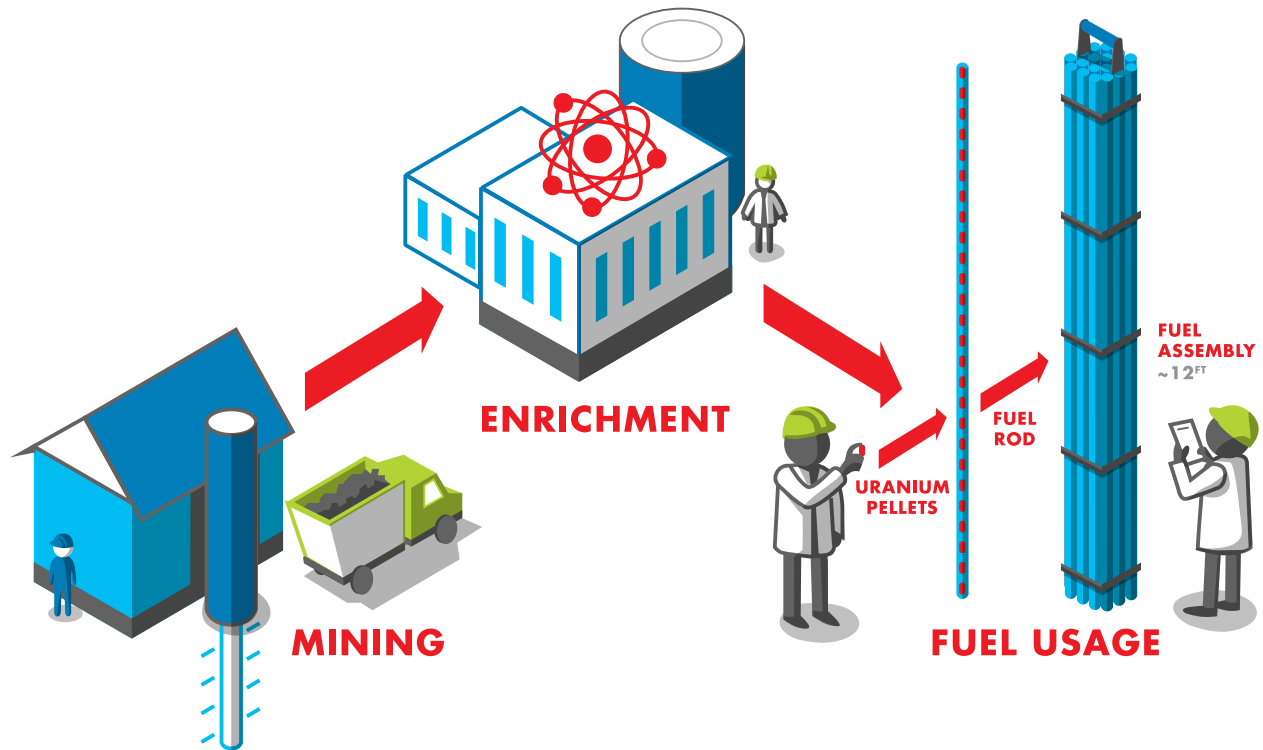


# ABOUT PLANT VOGTLE

The Vogtle Electric Generating Plant, located in eastern Georgia along the Savannah River, is jointly owned by Georgia Power (45.7%), Oglethorpe Power (30%), the Municipal Electric Authority of Georgia (22.7%) and Dalton Utilities (1.6%).

- Commercial operations at Plant Vogtle began in May 1987 for Unit 1 and in May 1989 for Unit 2; currently, with their extended licenses, they will operate through 2047 for Unit 1 and 2049 for Unit 2.
- Commercial operations began in July 2023 for Unit 3 and in April 2024 for Unit 4; both units are expected to operate for 60 to 80 years.
- The plant is named for Alvin W. Vogtle Jr., the chief executive officer of Southern Company from 1969 through 1983.
- Full-time, on-site U.S. Nuclear Regulatory Commission (NRC) inspectors monitor the plant to ensure it is safely maintained and operated.
- Plant Vogtle's four nuclear units provide reliable, emissions-free energy to customers and the state of Georgia.
- More than 1,600 people – including engineers, mechanics, nuclear plant operators, chemists, electricians, security officers and others – oversee the operations of the four units 24 hours a day, seven days a week, 365 days a year.

Nuclear power plants – with their huge, carbon-free output, low operating costs, minimal impact on the environment and inexpensive uranium fuel – are an important and strategic energy resource for the United States.



# NUCLEAR FUEL

Plant Vogtle generates heat with the use of ceramic pellets made of uranium. The uranium ore is mined, processed, enriched and formed into cylindrical fuel pellets.

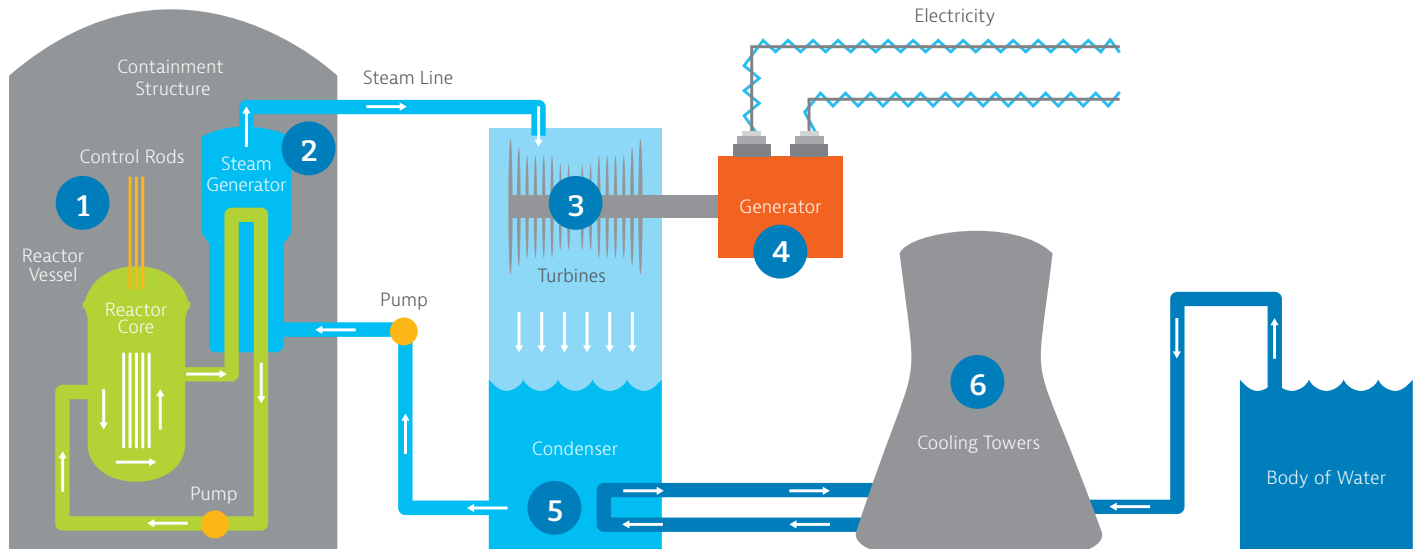
The pellets, each about the size of a pencil eraser, are arranged in long vertical tubes bundled together to form one fuel assembly. There are 193 individual fuel assemblies that make up each reactor core at Plant Vogtle Units 1 & 2, and 157 fuel assemblies in each reactor at Vogtle Units 3 & 4.

Uranium fuel does not burn chemically. The heat needed to create steam comes from the splitting of atoms, a process called fission, inside each pellet. Fission occurs when a uranium atom absorbs a neutron and the atom splits, which releases heat. Additional neutrons are also released, and they go on to split more atoms, creating a sustainable chain reaction.

# HOW PLANT VOGTLE WORKS

- 1 Water is pumped through the reactor core, heated by the fission process, pumped through thousands of tubes in the steam generators and back to the reactor in a closed loop.
- 2 Cooler water in the steam generator comes in contact with the hot tubes and turns to steam.
- 3 The steam goes to the turbine and spins the turbine blades.
- 4 The turbine spins the electric generator to produce electricity.
- 5 The steam goes to the condenser where it turns to liquid again to continue the cycle.
- 6 The water that circulates through the condenser is cooled by large cooling towers.

Note: The three water systems used to generate electricity are separate and don't mix with each other.







# SAFETY

Safety is the top priority at Plant Vogtle. We take very seriously our obligation to protect the health and safety of our employees, the public and the environment.

## Multiple layers of protection

Plant Vogtle is designed with redundant safety systems and multiple layers of protection – including structural strength, highly trained operators and proven emergency plans – to ensure safe operation. A reactor operating at full power can be shut down in less than three seconds by inserting control rods into the reactor core to stop the fission process.

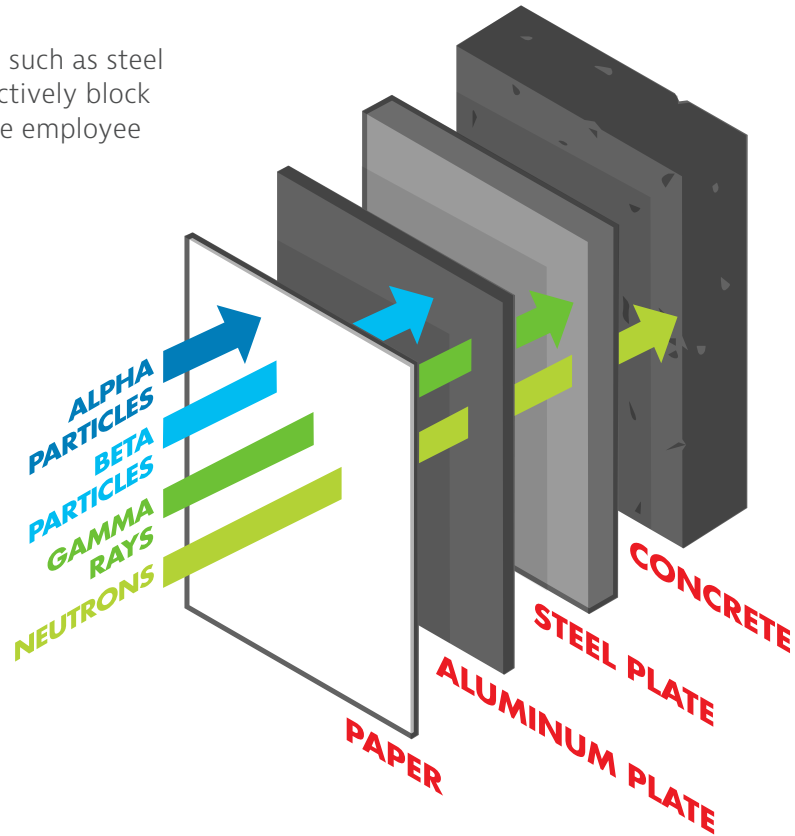
## Regulatory oversight

Full-time, on-site inspectors from the U.S. Nuclear Regulatory Commission (NRC) monitor the plant to ensure it is maintained and operated safely and in accordance with established nuclear operating procedures. The NRC holds nuclear plants to the highest security standards of any American industry.

## Emergency preparedness

In the unlikely event of an emergency, Plant Vogtle has comprehensive plans that define and assign responsibilities and 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 frequently to test these plans and train plant personnel.

Building materials such as steel and concrete effectively block radiation to ensure employee and public safety.



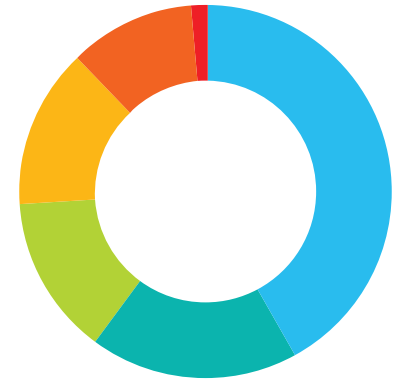
# RADIATION

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 a plant receives less radiation from its presence than from watching television.

Radiation absorbed by the human body is measured in millirem. The average background radiation from our natural environment (sunlight, rocks, soil, food) and man-made sources of low-level radiation adds up to approximately 300 millirem a year.

## Exposure to Radiation

A typical chest X-ray is about 10 millirem of radiation. A round trip flight from New York to California adds 5 millirem. Those living within a five-mile radius of a nuclear plant will receive less than one millirem of radiation exposure per year. Federal regulatory agencies carefully set and enforce dose limits to protect the public, the environment and plant employees.

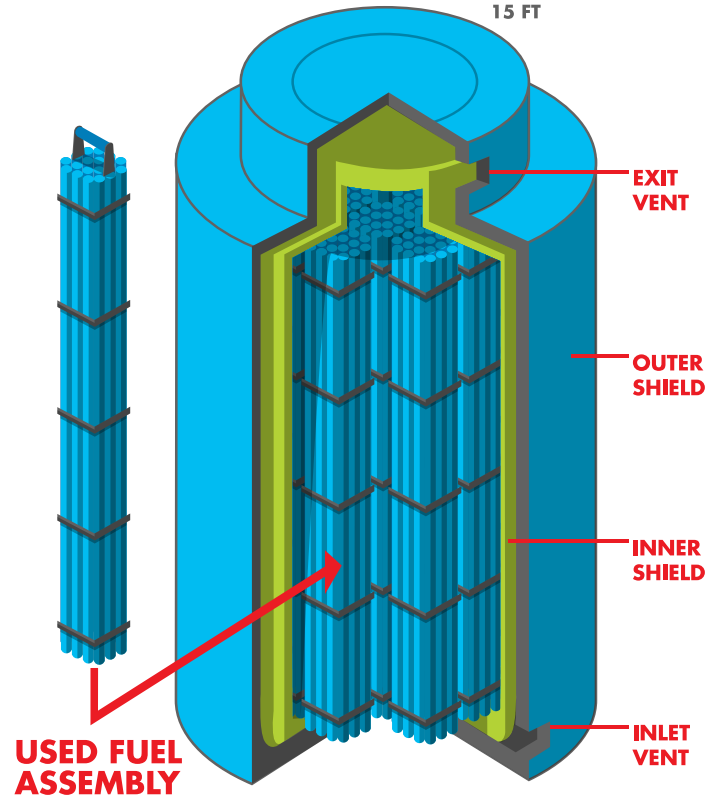


## Sources of Radiation

- 1% Nuclear industry
- 11% Food/Drinking water
- 14% Cosmic
- 14% Medicine
- 18% Buildings/Soil
- 42% Radon

## DRY CASK STORAGE

15 FT



# USED FUEL STORAGE

Every U.S. nuclear plant safely stores used nuclear fuel assemblies on-site in indoor concrete pools or storage canisters.

## Spent Fuel Pool

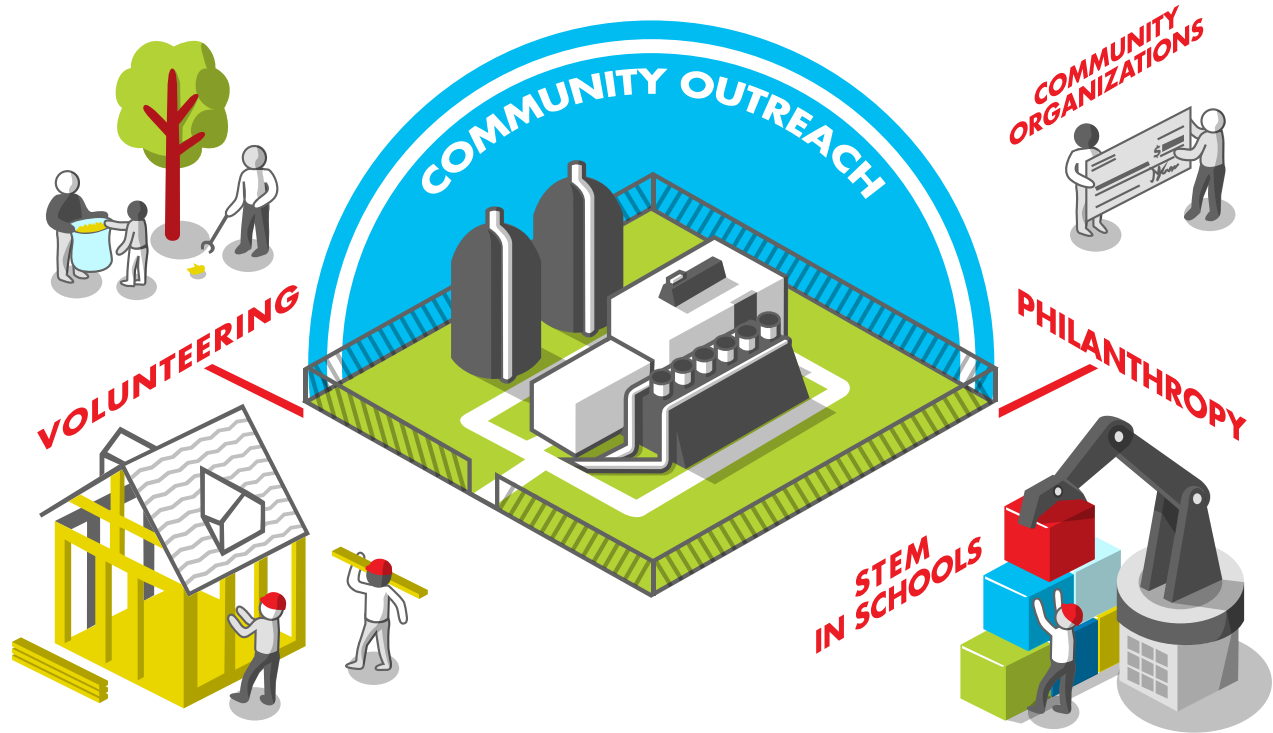
When much of the uranium has been used in the fission process, the fuel assemblies are removed and replaced with new fuel assemblies. The used fuel is stored in spent fuel pools – steel-lined concrete pools filled with water. Water and concrete are excellent radiation shields, and in the spent fuel pools, water also cools the fuel while the fuel becomes less radioactive over time.

## Dry Storage

Plant Vogtle also uses dry storage canisters to safely store used fuel on the plant site. Dry storage canisters are sealed cylindrical metal containers placed inside steel-reinforced concrete outer canisters. These canisters effectively shield the radiation as the used fuel continues to cool.

The NRC requires dry storage canisters to be constantly monitored and relicensed every 20 years. The naturally cooled and ventilated containers are designed and tested to prevent the release of radiation under the most extreme conditions – earthquakes, tornadoes, hurricanes and floods.

The dry storage areas are protected by a combination of sturdy plant construction, state-of-the-art surveillance and detection equipment and armed security forces.



## COMMUNITY PARTNERSHIP

Plant Vogtle strives to be a good neighbor.

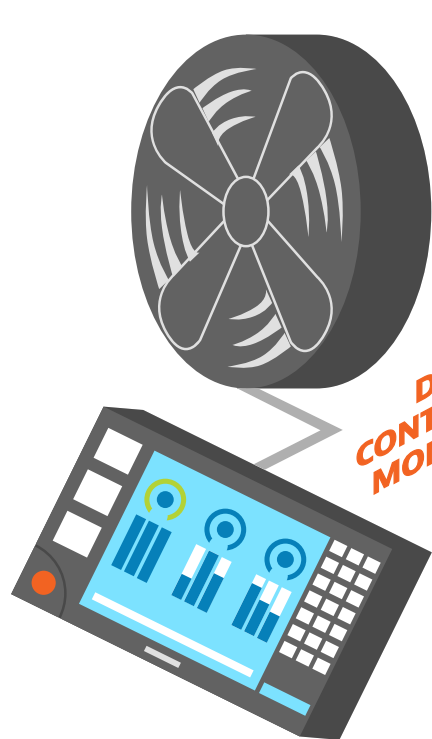
Our employees spend hundreds of hours each year volunteering and contributing to the communities we're fortunate to serve to help our neighbors grow and thrive. By participating in service projects and fundraising events and contributing to 501(c)(3) organizations and schools, Plant Vogtle is committed to improving lives and communities in areas around the plant.

## ENVIRONMENTAL RESPONSIBILITY

Since 1993, Plant Vogtle has been recognized as a Certified Wildlife Habitat by the Wildlife Habitat Council.

The site is situated on approximately 3,000 acres with hundreds of acres replanted with loblolly and native longleaf pines.

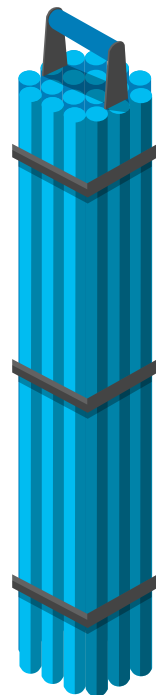
Plant Vogtle has management programs that enhance the habitat for species such as bluebirds, wood ducks, wild turkey and the endangered red-cockaded woodpecker.



**DIGITAL  
CONTROLS AND  
MONITORING**



**ADVANCED  
FUELS**





## INNOVATION

Southern Nuclear is a leading innovator in advanced nuclear technologies.

These include the research, development and licensing of advanced reactors, digital turbine control systems to maximize the generation of electricity, advanced fuel for greater fuel stability, cybersecurity protections and the use of remote monitoring tools and programs to perform regular inspections safer and faster than ever before. Our employees and facilities routinely receive industry recognition and awards for their contributions to enhance the safety, efficiency and performance of our operating plants.

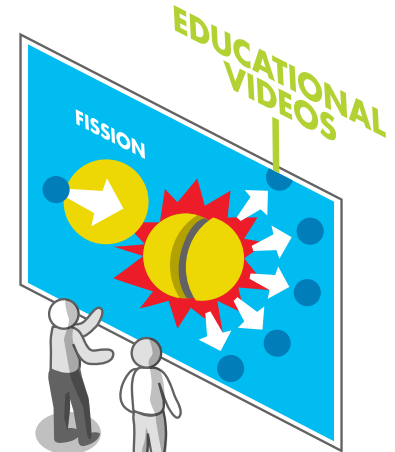
## PLANT VOGTLE UNITS 3 & 4

Plant Vogtle Units 3 & 4 are long-term investments that are essential to providing clean, safe, reliable and affordable electricity to millions of people.

Units 3 & 4 are the first newly constructed nuclear units in the U.S. in more than three decades. Combined with Units 1 & 2, the Vogtle Electric Generating Plant is now the largest generator of clean energy in the nation and is expected to produce more than 30 million megawatt hours of electricity each year.

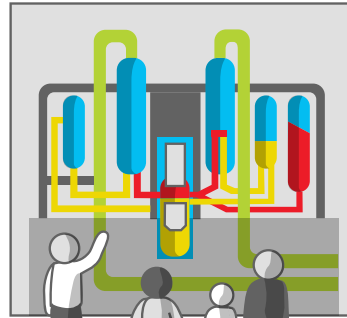
# ENERGY EDUCATION CENTERS

PLANT TOURS

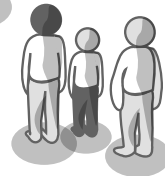


EDUCATIONAL  
VIDEOS

SIMULATOR  
DEMONSTRATIONS



MODELS AND  
DIAGRAMS



## ENERGY EDUCATION CENTER

Visit the Plant Vogtle Energy Education Center and see firsthand our nation's largest generator of clean energy. Schedule a visit in advance by emailing [g2sncveec@southernco.com](mailto:g2sncveec@southernco.com).

For more information about Southern Nuclear visit [southernnuclear.com](https://southernnuclear.com), [plantvogtle.com](https://plantvogtle.com) or follow us on social media [@southernnuclear](https://twitter.com/southernnuclear).

## SOUTHERN NUCLEAR

Southern Nuclear, headquartered in Birmingham, Ala., operates Southern Company's eight operating units at three locations: the Joseph M. Farley Nuclear Plant near Columbia, Ala., the Alvin W. Vogtle Electric Generating Plant near Waynesboro, Ga., and the Edwin I. Hatch Nuclear Plant near Baxley, Ga.

For more than 40 years, Southern Nuclear has operated nuclear energy facilities at the highest levels of safety and reliability, creating carbon-free electricity for millions of homes and businesses.

Owned by:



Operated by:



[southernnuclear.com](http://southernnuclear.com)