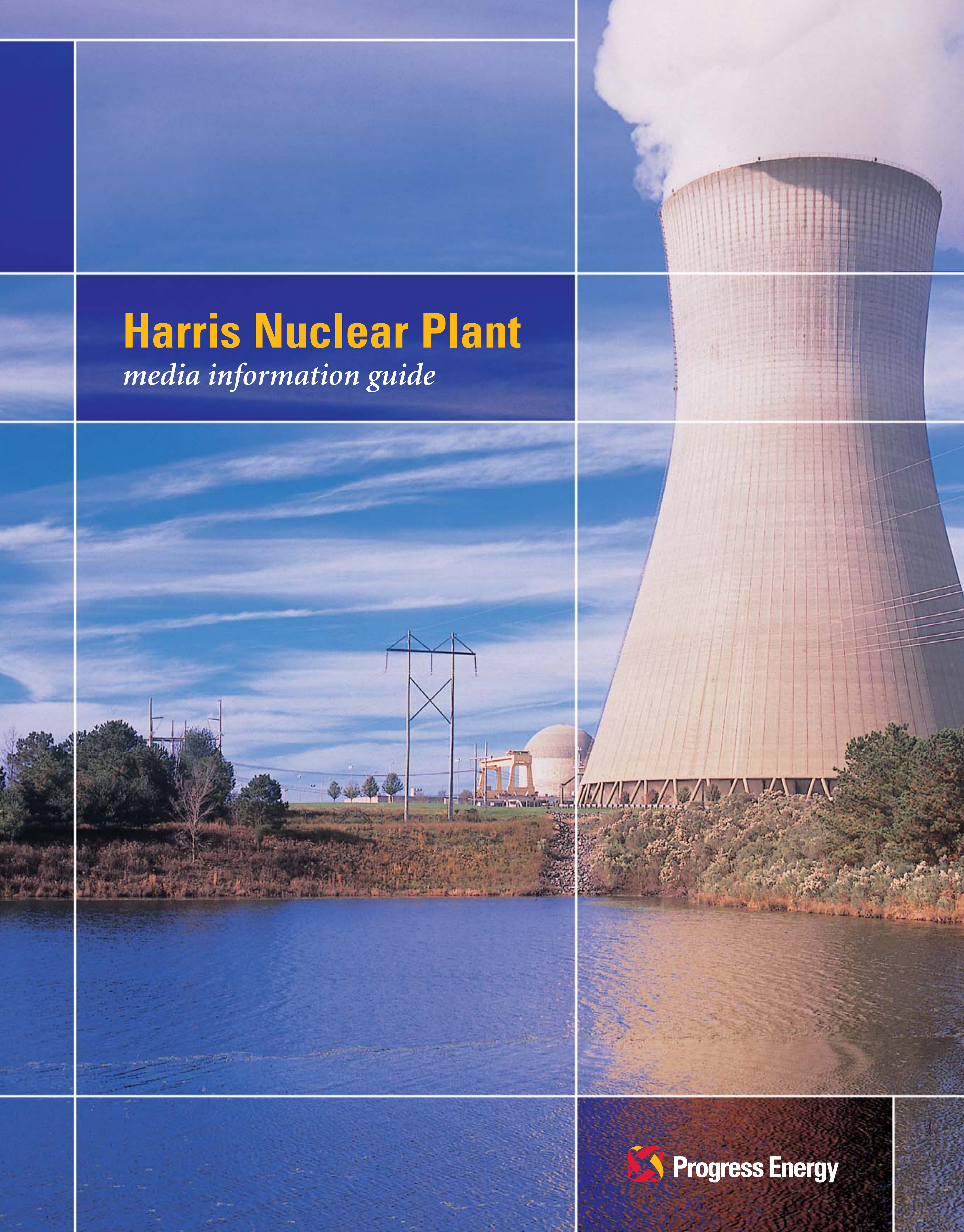
Harris Nuclear Plant

media information guide



Progress Energy

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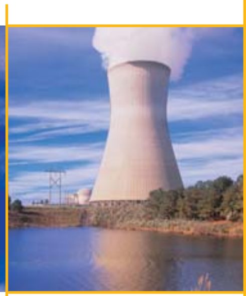
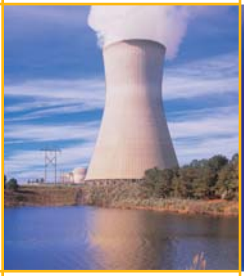


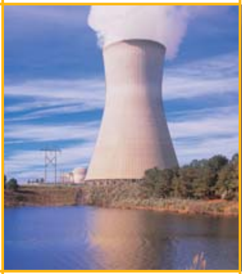


Quick facts

about the Harris Nuclear Plant

Location	22 miles southwest of Raleigh; 22 miles northeast of Sanford in New Hill, N.C.
Number of units	1 unit
Capacity	approx 900 MW
Reactor type	Pressurized Water Reactor (PWR)
Nuclear steam supply system manufacturer	Westinghouse
Turbine generator manufacturer	Westinghouse
Distinctive feature	526-foot high cooling tower. Water from the cooling tower basin circulates through the plant's condenser, absorbs heat from the steam, and travels back to the cooling tower where it is cooled to be reused.
Cost of plant	$3.8 billion
Announced	1971
Groundbreaking	1978
Commercial operation	May 2, 1987
Concrete	One-half million yards of concrete (approx. 75 miles of four-lane highway, or enough to stretch from Raleigh to Greensboro)

Cable	2,000 miles of power and control cable (enough to run between the East and the West coast and half way back
Steel	24 million pounds of reinforced steel (that's approximately 456 miles)
Reactor core	Fuel – Uranium 235 Number of fuel assemblies – 157 Refueling schedule – 1/3 of assemblies every 18 months Fuel enrichment (average) – 5 percent
Reactor vessel	Weight – 285 tons Height – 42 feet Inside diameter – 14 feet Wall thickness – 8 inches carbon steel
Main condensers	Manufacturer – Westinghouse Maximum cooling water flow – 500,000 gallons per minute Water temperature increase – 10-15°F
Containment structure	Concrete thickness – 4 1/2 feet Steel liner thickness – 5/8 inch Inside diameter – 115 feet Inside height – 240 feet
Steam generators	Number – 3 Weight – 340 tons Length – 67 feet, 8 inches



Progress Energy
nuclear plant overview

The company operates five reactors at four sites in North Carolina, South Carolina and Florida. It has operated nuclear plants safely for more than 30 years.

The two-unit Brunswick Nuclear Plant located near Southport, N.C. produces 1,838 MW of electricity. It began operation in the mid-1970s.

The single-unit H.B. Robinson Nuclear Plant located near Hartsville, S.C. produces 710 MW of electricity. Robinson began operation in 1971 and (through predecessor Carolina Power & Light) was the first commercial reactor built in the Southeast.

The Crystal River 3 Nuclear Plant located near Crystal River, Fla. produces 838 MW of electricity. It began operation in the mid-1970s.

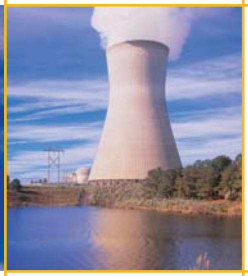
Brunswick Nuclear Plant

Robinson Nuclear Plant

Crystal River 3 Nuclear Plant

Harris Nuclear Plant

History of the Harris Plant



In the 1960s, then-CP&L began investigating the Harris site for construction of a possible nuclear power plant. From the Triangle area's rapid growth, additional electricity was clearly needed to meet the needs of customers.

In 1971, after extensive planning, the company announced plans to file with the NRC for a construction permit to build the Harris Nuclear Plant. The permit, issued in 1978, gave the company permission to construct a four unit nuclear power plant.

While originally planned for four nuclear reactors, the company only built one reactor due to changing economic conditions and demand. Two reactors were removed from the construction permit in 1981 and, by 1983, it was clear that one generating unit would meet demand. A leveling-off of population growth and energy consumption accounted for why previously forecasted rates were not realized.

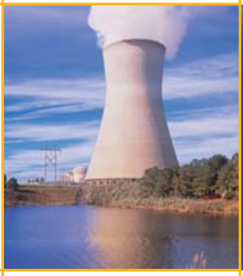
After 16 years of construction, the Harris Plant began generating power for the Carolinas on May 2, 1987.

During the construction phase, the company hired more than 2,000 employees. Jobs were diverse, ranging from design engineers and nuclear engineers to construction workers, reactor operators and administrative and professional positions. After 16 years of construction, the Harris Plant began generating power for the Carolinas on May 2, 1987.

The Harris Name

The company named the plant after Shearon Harris, a former president, chief executive officer and chairman of CP&L. After Harris received a law degree from Wake Forest University, he practiced law and served in the North Carolina General Assembly before coming to CP&L in 1957. He became president in 1963, chief executive in January 1969 and chairman in 1970. He continued as chief executive until Sept. 1979 and as chairman until 1980.

Shearon Harris became a prominent figure within the U.S. energy industry during the 1970s. He was chairman of Electric Energy Institute and helped establish the Electric Power Research Institute. Harris also served as chairman of the U.S. Chamber of Commerce in 1978. He died in 1980.



Historical perspective

on nuclear power and emergency planning

In the early 1960s, a small power plant at Shippingport, Pa., became the first nuclear plant to generate electricity for commercial purposes. Other small reactors followed in Michigan and California, and by the late 1960s, nuclear power plant construction had taken off around the country.

The Carolinas have a long-standing connection to nuclear power. N.C. State University installed the first reactor in the Carolinas in 1954 for teaching and training purposes. In 1959, CP&L (Progress Energy), Duke Power, South Carolina Electric & Gas and Virginia Electric and Power ordered a small 17-megawatt test reactor at the SCE&G Parr Shoals steam plant northwest of Columbia, S.C. That plant operated from late 1964 to 1967 and provided valuable learning experience for the four utilities, all of whom later built commercial nuclear plants.

Findings from the Three Mile Island accident show the amount of radiation released from the plant was less than that of two chest x-rays.

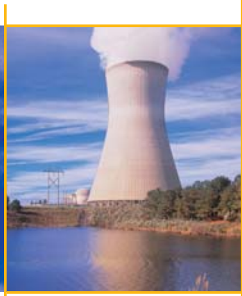
In 1971, CP&L's (Progress Energy) Robinson nuclear unit became the first commercial nuclear power plant in the southeastern U.S. In 1975 and 1977, CP&L placed two more nuclear units into commercial operation at its Brunswick Plant near Southport, N.C. Today, more than 100 commercial nuclear units generate electricity in the U.S. Twelve of these units are at seven sites in the Carolinas. The Harris Plant is the newest nuclear unit in the Carolinas. It began commercial operation in May 1987.

During the early days of commercial nuclear power in the U.S., emergency plans were not as detailed as those today. However, on March 28, 1979, emergency preparedness at U.S. nuclear facilities took a new role with the accident at Three Mile Island (TMI) in Pennsylvania. A combination of improper valve alignment, a mechanical malfunction, poor procedures and human error resulted in the partial melting of the reactor core and the release of a small amount of radioactive material into the air. (Findings from the accident show the amount of radiation released from the plant was less than that of two chest x-rays.)

TMI taught the nuclear industry valuable lessons. Significant strides have been made in the safety of reactor operations, redundancy of backup safety systems, plant emergency procedures and emergency plans for the public. One of the most significant lessons learned focused on the importance of providing accurate and timely information to the public.

Safety and security

at the Harris Plant

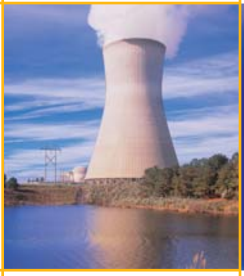


Public safety is the cornerstone of all plant operations. The Harris Plant has a seamless in-depth defense that coordinates closely with local, state and federal officials, including the military. The Harris Plant has one of the best security forces in the industry. Officers are mainly former military. They are heavily armed and work at the plant around the clock. They receive extensive training and are equipped with the latest technology.

Officers are heavily armed and work at the plant around the clock.

Since September 11, Progress Energy has committed more than $33 million to enhancing security at our nuclear plants and to expand the size of the security force, increase training, extend security perimeters and add new barriers. The U.S. Nuclear Regulatory Commission (NRC) is the federal agency that monitors and regulated all nuclear power plants. The plant is constantly in contact with this agency as well as the national intelligence community. The NRC requires each commercial nuclear power plant to hold a biannual, federally evaluated emergency exercise as part of its licensing procedure. The Department of Homeland Security and the Federal Emergency Management Agency require each plan to involve off-site emergency response participation in a federally evaluated emergency exercise every two years. Additionally, each reactor in the U.S. has two on-site NRC inspectors who have full access to all company documents and meetings.

The Price-Anderson Act, originally passed by Congress in 1957 and most recently amended in 1988, requires nuclear power plants to maintain financial protection in the event of a nuclear accident. In effect, the U.S. public currently has nearly $9 billion of insurance protection for such an accident, paid for by the nation's utilities, not the federal government.

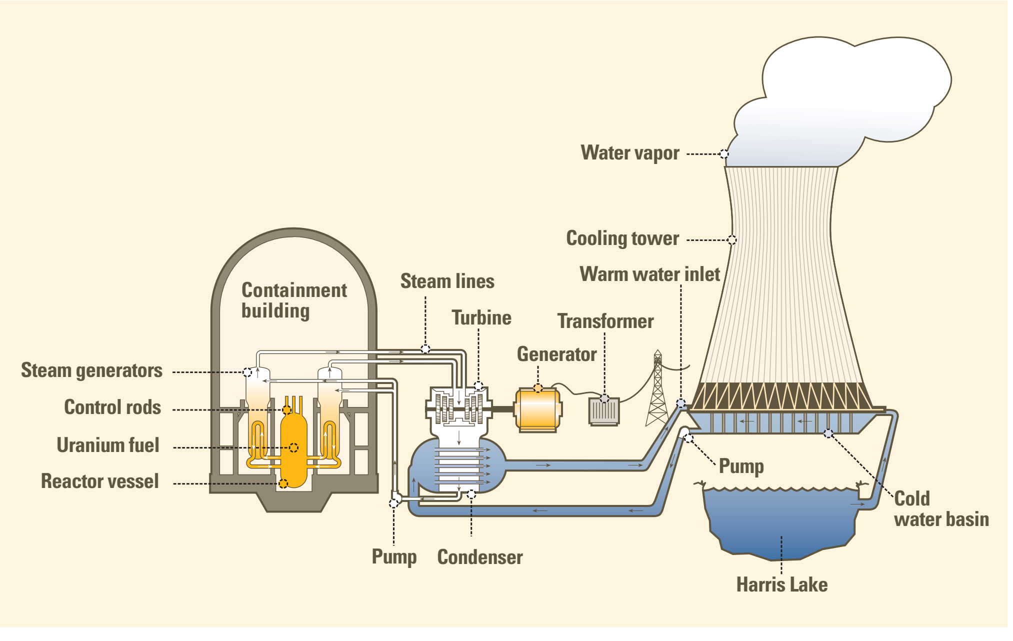


How a nuclear plant works

Nuclear power plants are not so different from other kinds of power plants. High-pressure steam turns the propeller-like blades of a turbine, which spins the shaft of a huge generator. Inside the generator, coils of wire and magnetic fields interact to create electricity.

Nothing is burned or exploded in a nuclear reactor. The uranium fuel generates heat through a process called fission. The uranium is contained in solid pellets about the diameter of a piece of chalk and about one-half inch long. These pellets are stacked inside long vertical tubes within the reactor.

As certain atoms in the pellets are struck by atomic particles, they split – or fission – to release particles of their own. These particles, called neutrons, strike other atoms, splitting them. This sequence of one fission triggering others, and those triggering more, is called a chain reaction. When the atoms split, they also release heat.



The nuclear reaction can be controlled by rods inserted among the tubes holding the fuel. The control rods can absorb neutrons and prevent them from hitting atoms which can fission. The nuclear reaction can be regulated by the manipulation of control rods into and out of the core.

Commercial nuclear power plants in the U.S. are either boiling water reactors (like Progress Energy's Brunswick Plant) or pressurized water reactors (like Progress Energy's Robinson, Harris and Crystal River plants). Both types of reactors are cooled by water.

In boiling water reactors, the water boils to steam directly in the reactor vessel. The steam is then used to make electricity by spinning the turbine to drive the electric generator.

In pressurized water reactors, the reactor water is kept under pressure to prevent it from boiling. This hot water is then pumped to a steam generator, where heat is transferred to a completely separate supply of water. This separate water boils to steam, which is used to spin the turbine driving the electric generator.

Both reactor types use a solid fuel made of two types, or isotopes, of the element uranium. One isotope, U-235, makes up less than one percent of natural uranium, but is easily fissionable. The other isotope, U-238, makes up most of natural uranium but is practically non-fissionable. Through a process known as enrichment, the concentration of U-235 is increased to three to four percent. However, the concentration of U-235 is still so low that a bomb-like explosion is impossible.

In addition to the numerous engineered safety features built into U.S. nuclear plants, several natural features help ensure the reactor's safe operation. The solid fuel pellets resist the effects of high temperature and corrosion during reactor operation. The low concentration of U-235 means the chain reaction tends to slow down as it gets hotter. The fuel pellets are stacked in slender tubes made of a special zirconium steel alloy that resists heat, radiation and corrosion.

The U.S Department of Energy forecasts that electricity demand in the U.S. will increase 50% by 2025. New emission-free nuclear power plants will be needed to help meet the rising demand and protect our nation's air quality.

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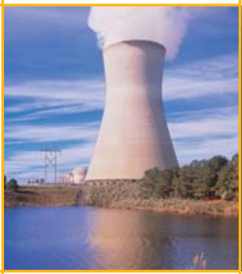
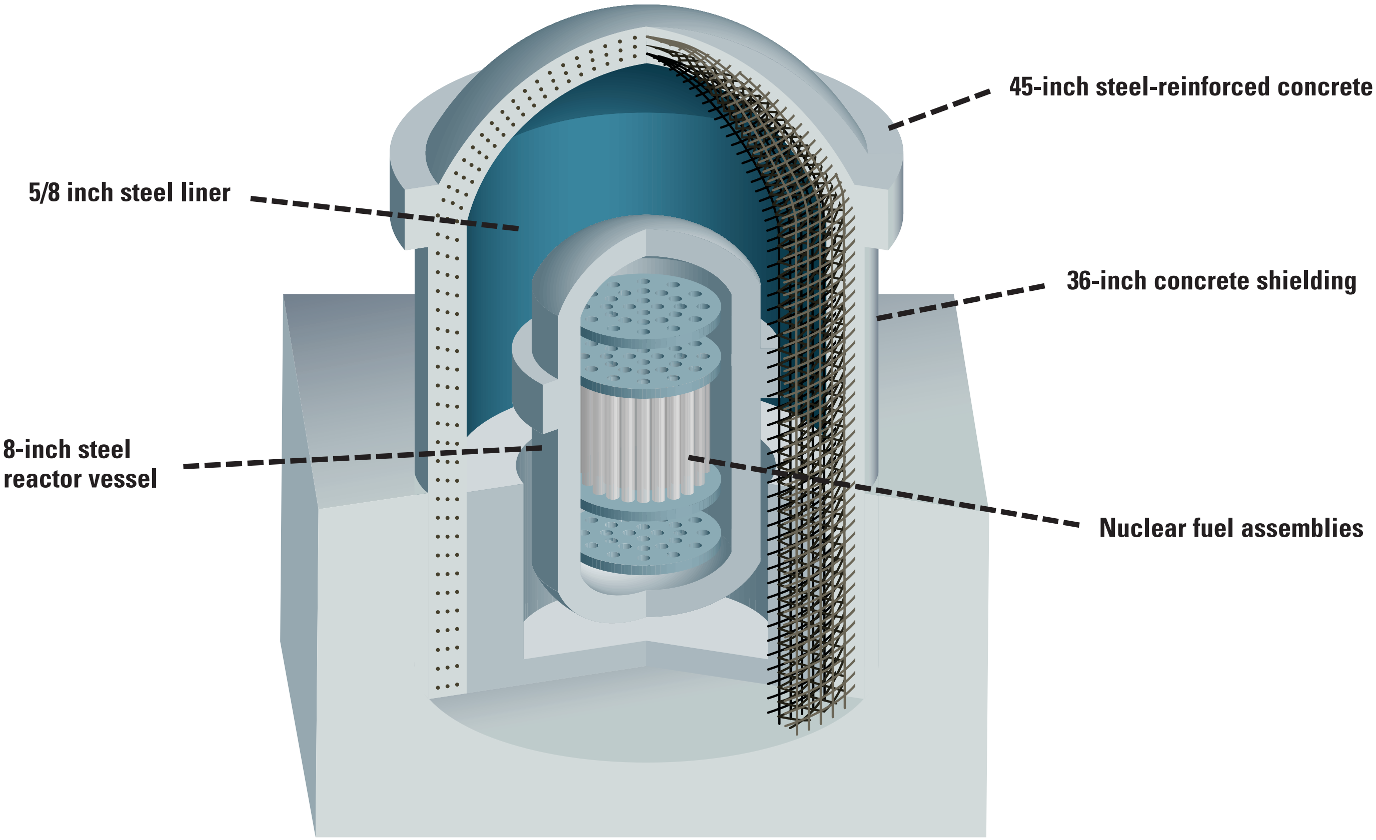
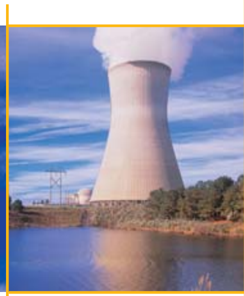


Safety

in containment construction



Radiation



There are three important points to remember about radiation:

1. Radiation is naturally occurring and cannot be totally avoided.
2. The benefits of using radioactive materials far outweigh the small risk from man-made radiation.
3. Nuclear power contributes very little to our total radiation dose.

Radiation is energy emitted in the form of waves or particles. Radiation includes such things as light and radio waves, but the word is most often used to refer to ionizing radiation. Radiation is a natural part of our environment and has always existed on earth (see chart on page 12).

When an atom breaks down or is split by a neutron, particles having energy and waves of energy are released from the nucleus. Elements that release energy in this manner are called radioactive. Some elements are naturally radioactive and other radioactive materials are man-made.

The effect of ionizing radiation on people is measured in a unit called a rem (Roentgen Equivalent Man) or more often in a smaller unit called a millirem (1/1,000th of a rem). The U.S. government has established a limit of 100 millirem per year for any member of the public in addition to natural and medical radiation exposure. The federal government limits the maximum amount of radiation exposure at the boundary of nuclear plant to 5 millirem per year.

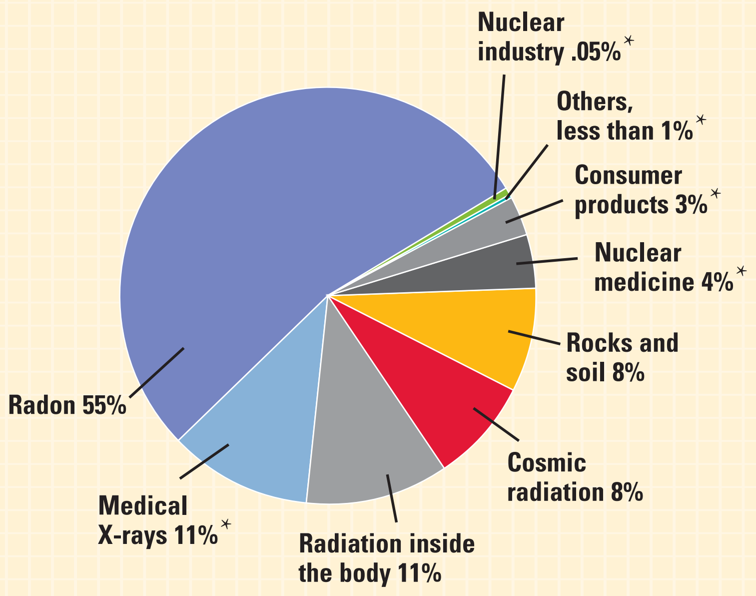
Any exposure under 5,000 millirem is generally considered low-level exposure. Although we know that very large doses of radiation are harmful, no ill effects have been seen directly for exposures lower than 50,000 millirem.

Most people are not aware of all the sources of radiation in our environment. We receive natural radiation from cosmic rays, from rocks and soil, from radon gas, from water and other sources. Small portions of radioactive elements appear in practically all matter, including our own bodies. Background radiation is unavoidable and varies from location to location. The higher the elevation, the more cosmic rays a particular area receives. In certain areas of Brazil and India, residents receive more than 1,000 millirem a year from the soil alone.

Small portions of radioactive elements appear in practically all matter, including our own bodies.

We also receive radiation from a number of man-made sources. X-rays provide the vast majority of man-made exposure for most people. However, many consumer products (such as televisions and smoke detectors) also contain very small amounts of radioactive material. In addition, flying in a plane increases radiation exposure.

AVERAGE U.S. RADIATION EXPOSURE



** Indicates man-made radiation*
Source: National Council of Radiation Protection and Measurements

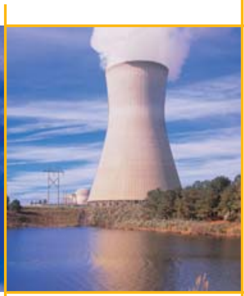
Sources and amounts of natural background radiation per year

Radon	200 millirem
Cosmic radiation	27 millirem
Internal radiation from human body	40 millirem
Rocks and soil	28 millirem

Sources and amounts of man-made radiation per year

Medical X-rays	39 millirem
Nuclear medicine	14 millirem
Consumer products (TV, smoke detectors, etc.)	10 millirem
Other	2 millirem
Average annual exposure for U.S. resident	**360 millirem**

Emergency preparedness
at the Harris Plant



The purpose of nuclear power plant emergency preparedness programs is to protect the health and safety of the public and plant personnel.

In addition to a biannual emergency exercise, Progress Energy and surrounding counties frequently test the siren warning system around the Harris Plant to ensure the siren system works properly. A three minute test of the siren system is conducted annually, low-volume tests are conducted quarterly, and silent tests are conducted every two weeks. Also, tone alert weather radios have been distributed to residents who live within five miles of the Harris Plant. These radios, and the sirens, would alert the public of an emergency at the plant. Additionally, a dedicated telephone system for use by the state and surrounding counties is tested on a monthly basis.

Progress Energy works closely with state and local emergency officials to develop and implement the most comprehensive, detailed emergency plans that would be used in the unlikely event of an emergency at the plant. Any emergency that might affect people living near the Harris Plant would likely develop over a period of time and would allow time for adequate warning to area residents to take necessary safety precautions.

If an emergency occurred...
Progress Energy would immediately notify officials in Chatham, Harnett, Lee and Wake counties as well as state and federal officials. State and local emergency officials might sound the sirens near the plant if notification to the general public is needed. The 81 sirens are strategically placed in a 10-mile radius of the plant. This area is known as the Emergency Planning Zone or EPZ.

If the sirens do sound, area residents should immediately tune to a local television or radio station for emergency information and instructions that would be broadcast over the Emergency Alerting System (EAS) network.

The sounding of sirens is NOT a signal for the public to evacuate.

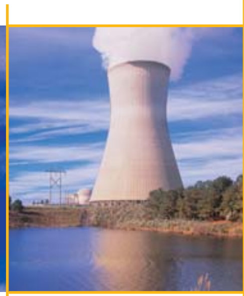
If there were a release of radiation from the plant, residents might be asked to take shelter in their homes with doors and windows closed. Or the public may be asked to evacuate a particular area. Residents within 10 miles of the plant have been provided a Safety Information Brochure containing instructions for taking shelter and evacuating.

In addition to EAS notification, state and local officials may notify residents of an emergency by using loudspeakers and knocking on doors in rural areas. Boaters on Harris Lake would not only be alerted by sirens sounding, but would also receive evacuation notice (if necessary) from local law enforcement officials using flares and loudspeakers.

MAP OF THE 10-MILE EMERGENCY PLANNING ZONE (EPZ)

Nuclear emergency

response terms



Emergencies that could occur at a commercial nuclear power plant are classified into four categories of ascending seriousness. These categories are set by the Nuclear Regulatory Commission (NRC). They tell plant, county and state officials what they should do for each type of problem.

1. Unusual event: This is the least serious of the four classifications. It means there is an issue at the plant that would not affect the public.

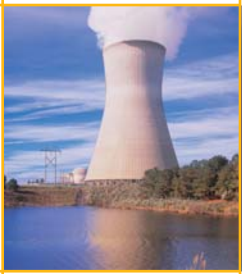
2. Alert: This is an event that could reduce the plant's level of safety. There is still no danger to the public. If appropriate, county and state officials would prepare emergency centers in case the situation should worsen.

3. Site area emergency: This is an event that could lower the plant's level of safety, but not enough to pose a danger to the public. The sirens could be sounded to alert the public to listen to local radio and television stations for information and instructions.

4. General emergency: This is a more serious event. State and local officials would take action to protect the public. Sirens would be sounded and local radio and television stations would give information and instructions. People in affected areas would be advised to stay indoors or to evacuate.

The North Carolina Division of Emergency Management is the principal agency for responding to radiological emergencies. Local response agencies that would provide assistance in evacuations, emergency communications and traffic control include Chatham, Harnett, Lee and Wake counties and municipal government agencies.

The Nuclear Regulatory Commission, Federal Emergency Management Agency, and the U.S. Department of Energy Radiological Assistance Team may become involved in emergency response activities.



Media information centers

during emergencies

Joint Information Center

The Joint Information Center is located in Raleigh. The media briefing area for this facility is located at the Progress Energy Customer Service Center, 160 Rush Street, Raleigh, NC.

The Joint Information Center provides a location for public information personnel from Progress Energy; Chatham, Harnett, Lee and Wake counties; the State of North Carolina; the NRC; FEMA; and other emergency response agencies.

Once the Joint Information Center is established, staff there would gather accurate and current information regarding the emergency condition, issue news releases and hold news briefings.

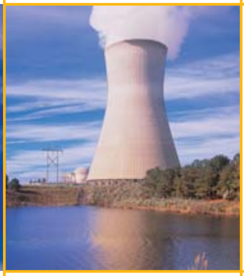
The Joint Information Center is part of the Progress Energy emergency communications network.

Near-Site Media Center

Prior to the activation of the Joint Information Center, Progress Energy's Harris Plant site communications representatives will address media inquiries pertaining to the Harris Plant, telephone 919-362-2160. A near-site media center would be set up at the Harris Energy and Environmental Center on State Road 1113 in New Hill. (To reach the center, turn off U.S. 1 at the New Hill exit and turn left at the stop sign.) Members of the media can report here for periodic briefings and press conferences, or they may call the center at 919-362-3261.

Alternatively, the news media may contact Progress Energy's corporate media communications staff, telephone 919-546-6189 (24-hour number). In the unlikely event of an emergency at the plant that would require the establishment of the Joint Information Center, the telephone lines for this facility will be made available as soon as possible.

Additional emergency
response facilities



In addition to the Joint Information Center, several emergency response facilities are set up to coordinate on-site and off-site response during an emergency. The following is a list of the other facilities:

Emergency Facilities at the Harris Plant site

- Technical Support Center (TSC): would be activated for operations, engineering and health physics managers to provide information support to plant operations during an emergency. Drawings, technical specifications and visual displays are located in this facility.

- Operational Support Center (OSC): would be staffed by operations, plant maintenance, health physics technicians, environmental and chemistry technicians, fire and rescue personnel, and other plant emergency support personnel. As requested by the plant control room or TSC staff, emergency teams would be dispatched from this location to perform response activities.

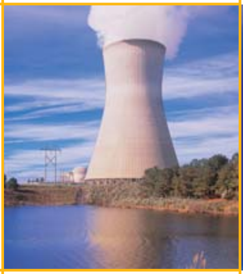
- Emergency Operations Facility (EOF): would be activated for overall emergency management response activities including coordination with federal, state and local officials. If needed, requests for protective action for the public would be recommended by the EOF staff to county and state officials.

Other Emergency Facilities

- State Emergency Operations Center (EOC): located in the Administration Building at 116 West Jones Street in Raleigh. This center would be staffed by state, federal and local authorities with Progress Energy providing liaison personnel. The state EOC is tied into the Progress Energy emergency communications network and provides state authorities a location from which they can direct off-site activities. Emergency equipment is also maintained in the EOC.

- State Emergency Response Team (SERT): composed of representatives from numerous state agencies, the Red Cross, the Salvation Army and other volunteer agencies. SERT is responsible for directing all off-site emergency response activities. Many SERT members are located in the state EOC.

- County Emergency Operations Centers (EOCs): where county authorities would direct off-site activities within their jurisdiction. These county facilities would coordinate all off-site emergency activities until SERT assumes direction and control of emergency response actions. For the Harris Plant, there would be four EOCs—one each in Chatham, Harnett, Lee and Wake counties.



Used fuel storage

at the Harris Plant

Since 1988, a year after the Harris Plant began producing electricity for customers, we have safely stored used fuel in a steel-and-concrete facility built to withstand tornadoes, earthquakes and hurricanes.

Overview and history

- The company has managed used nuclear fuel and other nuclear waste byproducts safely and efficiently for more than 30 years. Our used fuel plan provides a responsible, proven means of storing fuel rods used to generate electricity.

- In December 1998, Progress Energy requested an amendment to the operating license for the Harris Plant from the U.S. Nuclear Regulatory Commission (NRC). The amendment sought to obtain permission to open two already built fuel pools in the Harris Plant used fuel storage facility.

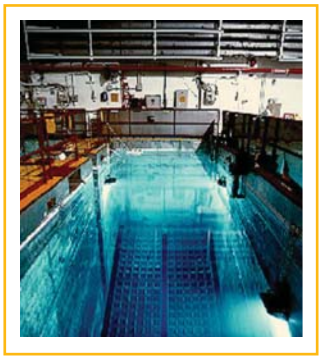
- Progress Energy requested permission to activate the additional storage pools because the U.S. Department of Energy has not build a permanent used fuel storage facility as mandated by Congress. The federal facility proposed for Yucca Mountain, NV has been approved by Congress and the president, and is now under review by the NRC. Since 1983, the company has contributed $540 million to the federal waste fund to finance a permanent solution for used fuel storage that was supposed to be available in 1998 – overall, the industry has contributed nearly $16 billion.

- The Harris Plant has additional storage because it was built to handle used fuel from four reactors. Because only one reactor was built, the plant has ample room to continue providing the decade-long process of safe, interim storage of used fuel rods from the company's Harris, Brunswick and Robinson plants. We only store used fuel rods from Progress Energy nuclear plants.

- After Progress Energy received NRC approval and the Atomic Safety Licensing Board concurrence, we began using one of the additional pools (Pool C) in July 2001. The fourth pool (Pool D) will not be needed for another 10-15 years.

- The company has been safely transporting used fuel from Robinson and the Brunswick Nuclear Plant for more than 15 years. In 2005, Progress Energy began dry cask storage of used fuel at the Robinson Nuclear Plant. Brunswick is currently the only plant in the Carolinas shipping used fuel to the Harris Plant. Both "wet" and "dry" storage methods are equally safe. Shipping is scheduled to end by 2008.

Safety and experience



Fuel storage pool

- Our plan involves using the same technology in the same building at the same site, taking the same number of annual shipments and storing them in the same way that we have safely stored used fuel rods at the Harris Plant for more than a decade and as a company for more than 30 years.

- Since 1988, a year after the Harris Plant began producing electricity for customers, we have safely stored used fuel in a steel-and-concrete facility built to withstand tornadoes, earthquakes and hurricanes.

- Our operators are highly trained professionals who are skilled in using this proven technology. Pool storage is the industry standard. Every reactor in the United States uses pool storage for at least the first five years after fuel is removed from the reactor. The technology has been used safely by the industry since the 1950s.

- Progress Energy generates about 40 percent of the electricity its customers use through nuclear facilities and has been recognized by industry groups as a leader in safety. The Harris Plant consistently receives excellent safety ratings from the NRC, which maintains an on-site supervisory staff.

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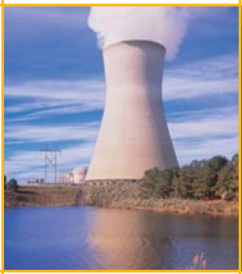
Storage of used nuclear fuel rods

- Progress Energy uses uranium fuel pellets to power the generators at its four nuclear plants. The pellets are placed end-to-end inside metal rods. The rods are bundled into assemblies. The fuel rods produce heat that turns water into high-pressure steam, which forces a turbine generator to turn, producing electricity. After four to six years, the fuel in the rods is depleted and has to be replaced. About one-third of the fuel rods in a reactor are replaced at each scheduled refueling.

Fuel pellet

- At the Harris Plant, the fuel rod assemblies are stored in steel-lined chambers inside a highly secure building with massive concrete-and-steel walls. The facility has been built to withstand tornadoes and earthquakes and has extensive monitoring systems. Inside the secure chamber, the used fuel rod assemblies are carefully positioned in racks covered by 23 feet of water for cooling.



Nuclear security Q &A

SAFETY

1 Who is responsible for ensuring plant safety?

The operator of a nuclear plant has the responsibility to ensure that it is operated safely, and Progress Energy's nuclear plants have safety records that are among the best in the nation. The U.S. Nuclear Regulatory Commission (NRC) is the organization charged by the federal government with oversight of all the nation's nuclear power plants. The NRC sets standards for both plant design and personnel, reviews our operations and conducts regular inspections of plant operations and security. There are permanent NRC representatives at each of our nuclear facilities, providing oversight, along with our own professional staff, to ensure safe operation.

The NRC sets standards for both plant design and personnel, reviews our operations and conducts regular inspections of plant operations and security.

2 How safe are nuclear power plants in case of an accident?

Nuclear plants are designed with multiple layers of safety systems and structures, designed to both protect the plant itself and protect the community. There is the outer containment structure, built of reinforced concrete (4 1/2 to 6 feet of concrete with a steel liner) and the reactor vessel itself, made of steel that ranges from 8 to 12 inches in thickness. The reinforced concrete containment structures have been designed to withstand the impact of hurricanes, tornadoes, floods and airborne objects with tremendous force. State-of-the-art computer modeling techniques determined that typical nuclear plant containment structures, used fuel storage pools, fuel storage containers and used fuel transportation containers would withstand severe impact forces despite some concrete crushing and bent steel. In all cases, public security would be protected.

Nuclear plants also have multiple safety and plant shutdown systems. All of these systems have their own backup systems that are physically separate, to provide even more protection and reliability.

3 How is the plant protected from illegal entry or sabotage?

Nuclear plants are among the most secure industrial facilities in the world. There are many physical barriers to forced entry. Heavily armed security forces monitor the plant around the clock. These security forces use sophisticated electronic surveillance equipment that scans the area surrounding the plant. The plant is also built with locked access vaults that prevent those without computer-readable security clearances from entering vital areas of the plant.

4 What about nuclear waste?

Once nuclear fuel has been used to generate power, it is still radioactive and requires safe and secure storage. This "used fuel" is stored either in "dry storage" (specially designed and fully lined concrete canisters) or in "wet storage" (submerged under 23 feet of water in fortified concrete, steel-lined pools). Progress Energy uses both methods and they are considered equally safe. In February 2001, the NRC released a study of used fuel storage pool accident risk that took into account acts of sabotage and concluded "the risk is low," largely because there should be adequate time to begin alternate cooling procedures even after an extremely severe event that might release water from the fuel pool.

Under current law, the U.S government is responsible for arranging long-term storage for used fuel from the nation's nuclear power plants. The Department of Energy and President Bush have recommended a remote site at Yucca Mountain, Nevada, as the nation's permanent nuclear waste repository. Progress Energy's customers have paid more than $540 million since 1983 into a Federal Waste Fund to fund a federal repository. Nationwide, more than $16 billion has been contributed. Once the government has approved a long-term storage site, Progress Energy plants will be able to ship used fuel there for permanent storage.

Are nuclear plants protected against terrorist attacks?

5 In addition to being guarded 24 hours a day by well-trained security officers, our nuclear plants have plans already prepared to defend the facilities from terrorists. These plans involve support from local, state and federal law enforcement. The NRC conducts security drills at all plants around the country on a regular basis, and all of the Progress Energy nuclear plants have performed very well on these security tests. We are in constant communication with the NRC and the national intelligence community for current information on security threats. In addition to our own security personnel, the U.S. military is on call to respond to protect nuclear power plants if necessary.

In addition to being guarded 24 hours a day by well-trained security officers, our nuclear plants have plans already prepared to defend the facilities from terrorists.

Has plant security been increased?

6 Yes. Our plants have operated on heightened security since the attacks on September 11, 2001 just as they did after the 1993 World Trade Center bombing and the Oklahoma City bombing. In the interest of security, we cannot discuss specific measures that are being taken at our nuclear plants. Under federal law, this information must be kept confidential. These new security measures include additional restrictions on access, as well as an increased security presence and closer coordination with our partners in intelligence, military, law enforcement and emergency response at the federal, state and local level.

Tight security at nuclear facilities is nothing new. The plants have always been guarded 24 hours a day by heavily armed, well-trained security personnel. All of Progress Energy's nuclear plants have performed very well on the government's security tests, including the NRC's mock terrorist attacks. In fact, none of our plants has ever failed one of these security tests.

7 **What about terrorists targeting used fuel storage or shipping?**

Used fuel is stored in secure and protected facilities. In addition to the physical design and on-site protection that exists, used fuel storage facilities would be a very small target for an aircraft assault.

The federal government also closely regulates the shipment of used fuel, with measures that under federal law we are required to keep confidential. The fuel is shipped in specially designed, fortified shipping casks, and security is coordinated with state and local law enforcement. Progress Energy has been safely shipping used nuclear fuel by rail for more than 14 years, and our ability to do so allows us to continue to operate our nuclear facilities. Once the federal government opens its national used fuel storage site, all U.S. nuclear plants will be required to send their used fuel there for long-term storage.

EMERGENCY PREPAREDNESS

1 **What if there is an accident or attack at a nuclear plant?**

All of our nuclear plants have contingency plans and support agreements with state and local law enforcement and emergency management officials in the unlikely event of an accident or terrorist attack. These detailed plans include procedures for notifying the public of the measures they should take to protect themselves. These measures may include evacuation of surrounding areas if the local or state officials decide this action is necessary. Each of Progress Energy's nuclear facilities maintains a program of community outreach and education for those who live near the plants.

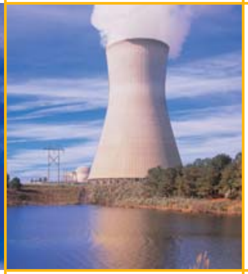
The emergency management plans are regularly updated and drilled four times a year.

2 **Who is responsible for protecting citizens in the event of an incident?**

Local counties where plants are located, state and federal agencies including the NRC and the Federal Emergency Management Agency (FEMA), and Progress Energy work together to establish and maintain emergency response plans for nuclear plants and the surrounding communities. Progress Energy works closely with community members and coordinates with emergency management officials at the state and local level who are responsible for measures intended to provide public protection in the event of an emergency. The plans are regularly updated and drilled four times a year. Performance on these practice sessions is evaluated and graded by FEMA every two years. Federal and local law enforcement agencies are in close contact with the plants throughout the year and participate in some of the drills. All of our plant community emergency response agencies have always performed well on these drills.

The environment

and the Harris Plant



INCREASING SUPPORT FOR NUCLEAR

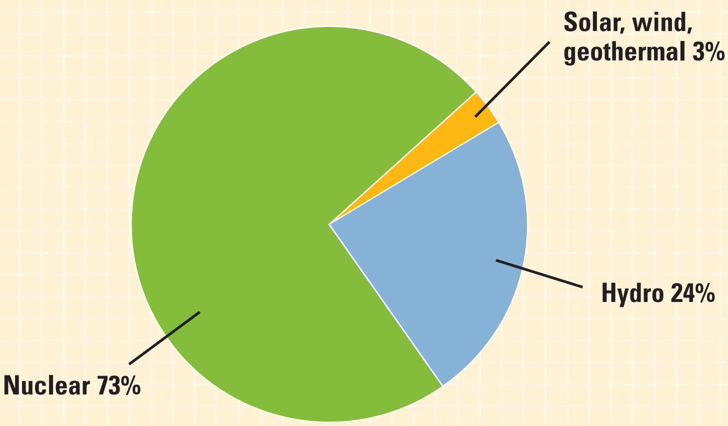
"Thirty years on, my views have changed, and the rest of the environmental movement needs to update its views, too, because nuclear energy may just be the energy source that can save our planet from another possible disaster: catastrophic climate change."

– Patrick Moore, founder of Greenpeace

- Nuclear plants release no air or greenhouse gas emissions. Air emissions include nitrogen oxide, sulfur dioxide, which are associated with smog and acid rain, and mercury which is a neurotoxin; greenhouse gas emissions are carbon dioxide, which is associated with climate change.

- Nuclear energy is the largest source of emission-free electricity in the U.S., comprising 73 percent of all emission-free sources.

SOURCES OF EMISSION-FREE ELECTRICITY



Source: Global Energy Decisions/Energy Information Administration 2006

• The Harris Plant alone prevents approximately 4.7 million tons of CO2 emissions a year (PGN environmental services).

• In 2005, U.S. nuclear plants prevented approximately 682 million metric tons of carbon dioxide from entering the atmosphere (NEI).

• Because of increased capacity factors, nuclear plants are able to further prevent air pollution from fossil plants. License extensions will contribute further to prevented emissions.

• Nuclear plants have helped states comply with the federal Clean Air Act.

• Over a plant's life cycle (construction, operation, dismantling and disposal), nuclear energy emits a small amount of air and greenhouse gases. Yet the lifecycle of nuclear energy is among the lowest of any forms of electricity generation. In fact, for greenhouse gases, the amount is comparable with the amount emitted by hydroelectric power and is less than all other available sources – wind, solar, biomass, natural gas and coal (NEI).

Cooling water discharged from nuclear plants has no harmful pollutants and must meet federal EPA and state standards for temperature.

Minimal environmental impact

• Nuclear plants meet strict standards for radiation emissions: They are carefully designed, built and monitored to prevent releases of radioactive materials. The Environmental Protection Agency (EPA) and the U.S. Nuclear Regulatory Commission (NRC) enforce strict standards.

• Nuclear plants have one of the smallest environmental footprints of any generating source or manufacturing process.

• They use very little land compared to renewable sources. To build the equivalent of a 1,000-MW plant, a solar park would have to be more than 35,000 acres, and a wind station would require more than 150,000 acres (NEI). The Harris Plant produces 900 MW and the total site area is approximately 11,000 acres.

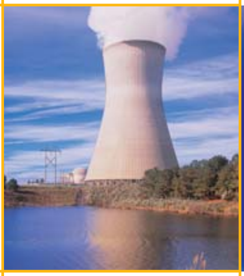
• Cooling water discharged from nuclear plants has no harmful pollutants and must meet federal EPA and state standards for temperature. Cooling water never comes in contact with radioactive materials.

- The Harris Lake was constructed on 4,100 acres of land near the plant site to serve as a source of cooling water to the plant. It is part of the Cape Fear River drainage basin and was created by construction of an earthen dam across Buckhorn Creek approximately two miles above the Cape Fear River.

- Tritium is a byproduct of the nuclear reactor process.
  Tritium occurs naturally in low concentrations in the environment, and plant personnel monitor the areas around the plant to make sure tritium levels are below federal standards.

- Nuclear plants provide habitats for aquatic ecology and endangered and protected species.

- Nuclear plants reduce, eliminate or manage all waste by products, and they are one of few industries established since the industrial revolution that has managed and accounted for nearly all of its byproduct material.

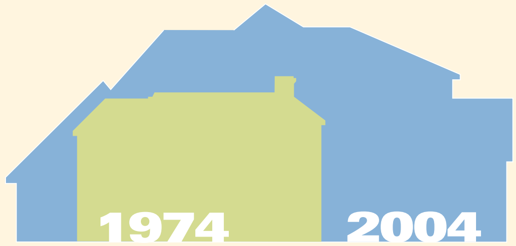


Possible nuclear expansion

at the Harris Plant

Since the company built the Harris Plant in 1987, no new baseload generation plants have been added. Since that time, the company has grown by 500,000 customers. Approximately 300,000 new customers are expected to be added by 2016.

GROWING DEMAND:
Increase in the average home size



> The average American home has grown nearly 40 percent since 1974 – from 1,695 square feet to 2,349 square feet. *ABC News, December 2005

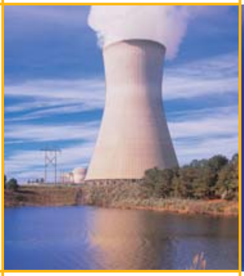
In late 2005, the company notified the U.S. Nuclear Regulatory Commission (NRC) of plans to submit a combined license in 2007 or 2008 for the possible addition of a second reactor at the Harris Plant site. A decision to build has not yet been made.

The Site

After evaluating multiple sites, the Harris site was chosen for a number of factors. Among them are available transmission to accommodate the additional generation, land and water. Because the site was originally designed for four reactors, much of the infrastructure is already in place to accommodate an additional reactor. The availability of transmission lines reduces the project's overall cost. The site has 35 square miles of land for expansion and an ample supply of water for cooling. The location of the Harris site is important because it is in close proximity to the largest customer load.

Technology

The company has chosen the Westinghouse AP 1000 advanced 1,100 MW reactor design for possible new nuclear generation in both the Carolinas and Florida. This will serve approximately 792,000 homes. The reactor uses a passive safety design and engineering simplicity to enhance reliability while reducing costs. It uses 87 percent less cable, 83 percent less pipe, 50 percent fewer valves and 35 percent fewer pumps than reactors in operation today.



Community contributions

- The Harris Plant positively impacts an eight-county region economically and supports nearly 2,000 jobs region-wide including direct Harris employees.

- The Harris Plant supports more than $120 million in regional income.

- The Energy and Environmental Center conducts numerous outreach activities to local school groups as well as teacher training.

Annual events

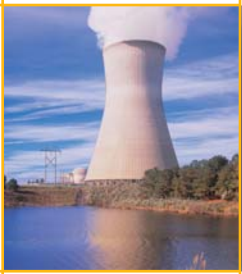
- Employees participate in the Progress Energy Employee Giving Campaign. Since 2001, they have raised nearly $3 million. The campaign supports non-profit agencies in the counties surrounding the plant and throughout the company's service area.

- Employees have "adopted" Moncure School and serve as mentors to the students.

Plant employees took part in a full day of community outreach projects in Pittsboro to lend a helping hand to the Chatham County Partnership for Children and the Family Violence and Rape Crisis Service Center.

Harris Nuclear Plant employees participate in an annual Book Bag Drive. Book bags and boxes of supplies which included items such as notebooks, pencils, paper and rulers were delivered to schools in our neighboring counties.

- Employees hold a book bag drive to collect book bags and school supplies to donate to local schools.
- Employees help needy families each Christmas through the Wish Upon a Star program.
- Employees also raise money for Special Olympics by participating in various events.
- Employees volunteer for the Meals on Wheels program.
- Also, plant personnel are active in other volunteer activities, including the American Cancer Society, local fire and rescue squads, Take a Kid Fishing program and many others.
- The Harris Plant sponsors the Earth Day celebration and the Electrical Vehicle Challenge at the Harris Lake County Park.



Glossary of terms

Background radiation: Radiation that is naturally occurring in the environment, typically from cosmic rays filtering down through the atmosphere and radon gas filtering up through the soil. Background radiation is present everywhere, at all times, and varies greatly depending on geographical location.

Baseload plant: A plant that produces electricity at a constant rate and runs continuously in order to meet the basic electricity needs of customers, whether demand (or load) is high or low.

Cask: A heavily shielded container used to store and/or ship radioactive materials, including used fuel.

COL: Combined Operating License; the license combines what were previously individual licenses for the design and operation of a nuclear plant, granted by the Nuclear Regulatory Commission.

Cooling tower: A hollow structure in which water from the plant's condenser is cooled, releasing its heat through water evaporating into the air. The emission from a cooling tower is simple water vapor, similar to a rain cloud.

Control rods: Control rods are made of a material that absorbs neutrons. They can be manipulated into and out of the core to act as on/off switches for the fission chain reaction. When the control rods are raised, fission increases and more heat is produced; when lowered, the chain reaction slows down. The reactor can be quickly shut down by rapid insertion of the control rods into the reactor core.

FERC: The Federal Energy Regulatory Commission, or FERC, is an independent agency that regulates the interstate transmission of natural gas, oil and electricity. FERC also regulates natural gas and hydropower projects.

Fission: The splitting apart of an atom's nucleus, releasing a large amount of heat energy.

NRC: The U.S. Nuclear Regulatory Commission, or NRC, regulates the nuclear power industry and all other uses of nuclear materials in the United States.

Nuclear energy: The tiny nucleus at the center of the atom contains the most powerful force ever discovered. This force gives us nuclear energy, sometimes called atomic energy. The most complicated element that occurs in nature is uranium. The nuclear fuel used in nuclear power plants is a rare form of uranium called uranium-235. When the nucleus of a uranium-235 atom is struck by a neutron, it breaks apart and more neutrons shoot out. These new neutrons strike other uranium nuclei, causing them to split and give out still more neutrons. In this way, more and more nuclei split, and many atoms give up their energy at once. In a nuclear power plant, control rods are lowered into the reactor to keep the reaction in check. But the uranium still gets very hot, and so a coolant, a liquid or a gas, moves through the reactor. When the hot coolant leaves the reactor, it goes to a boiler to make steam. It is this steam that powers generators to make electricity for our homes and factories.

Nuclear fuel: Enriched uranium that is used as the heat source necessary for producing steam to turn the turbines and generate electricity from a nuclear power plant. The reactor contains about 91 tons of uranium dioxide in the form of solid pellets that serve as the heat source for producing steam. Each pellet is about the thickness of a piece of chalk and approximately one-half inch long.

Potassium iodide: Potassium iodide (also called by its name as an element, KI) is an over-the-counter drug (a simple salt) that may reduce the amount of radioactive iodine absorbed by your body's thyroid gland. KI fills your thyroid with iodine so that it cannot absorb any radioactive iodine. In North Carolina, local health departments distribute KI to residents within a 10-mile radius of nuclear plants for use in case of an emergency.

Radiation: Radiation is energy emitted in the form of waves or particles. When an atom breaks down or is split by a neutron, particles having energy and waves of energy are released from the nucleus. Elements that release energy in this manner are called radioactive. Some elements are naturally radioactive and other radioactive materials are man-made. More than 80 percent of the radiation we are exposed to comes from such natural sources such as sunlight, soil, and certain types of rocks.

Radiation barriers: Three barriers are designed to keep the radioactive by-products of the fission process away from the environment during both normal and accident conditions.

- The fuel rod: Most fission products remain bound inside the ceramic uranium pellets. These pellets are stacked and sealed inside fuel rods made of zirconium alloy. The fuel rods are joined together into fuel assemblies. The zirconium alloy coating provides the first of three radiation protective barriers.

- The reactor coolant system: The heat generated by the fuel is removed by the reactor coolant system, which circulates through the fuel assemblies. The reactor coolant system is totally enclosed and provides the second of the three radiation protective barriers.

- The containment building: The reactor coolant system is totally enclosed in this building. This massive building is an air-tight, cylindrical concrete building with 4-1⁄2-foot concrete walls reinforced with steel, a dome 2-1⁄2 feet thick and a base 12 feet thick. This is the third radiation protective barrier.

Refueling: About one-third of the uranium in a reactor is removed or replaced every 18 to 24 months for refueling. A reactor must be shut down to be refueled, so plants enter a period called a refueling outage. Progress Energy refueling outages typically last approximately 30 days, or longer, depending on the scope of work to be accomplished with the plant offline.

Used fuel: Nuclear fuel rods that are no longer useful for generating electricity but are still radioactive and must be stored safely. Fuel is typically useful for approximately four and a half years.

Transformer: A device that changes the voltage of an electric current either higher (step-up) or lower (step-down).

Turbine: An engine in which a wheel of curved vanes (blades) is attached to the driving shaft. The pressure of steam, water, or air against the vanes causes the shaft to turn.

Uranium: This metal is one of the heaviest of all known elements. It was named after the planet Uranus. Uranium gives off radioactivity. As it loses atomic particles, it decays and ends up, after millions of years, as lead. People working with uranium often need protective clothing to shield their bodies from radiation damage. Uranium is the fuel used to make nuclear energy in nuclear power plants. It is mined in many countries.

Watt: A unit of power used to specify the rate at which electrical energy is dissipated. One kilowatt equals 1,000 watts; 1 megawatt equals 1 million watts, or 1,000 kilowatts.