Duke spends billions updating aging reactors

Digital controls one improvement to carry facility through next 20 years

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SENECA — The 37-year-old Oconee Nuclear Station, not built to the standards required of the new generation of reactors, is undergoing an expensive renovation by Duke Energy to prepare for the next 20 years as one of the nation's first relicensed facilities.

Welders, pipe setters, engineers and schedulers employed by local contractors are at work at the aging nuclear power plant as Duke spends as much as $2 billion to upgrade the massive three-reactor facility. It's the largest of three nuclear stations that together create half of the electricity Duke provides in the Carolinas.

The work will update the plant to more current standards and add additional layers of protection — "staying current with time and technology that wasn't available 37 years ago," said Duke spokeswoman Sandra Magee. "It's an investment we feel is important to make in keeping the plant operating safely."

Nearby residents can see — and hear — heightened activity. Ben Turetzky was startled by gunshots one night and wondered if duck hunters were out or if it was something serious. Turetzky made inquiries and learned that plant security officers had night weapons training. He's also noticed new clearing around the site's perimeter to increase visibility.

Investments in the plant's future please Turetzky, who hopes Duke, a major taxpayer and employer, will still be a presence beyond the 20-year extension. He hopes enhancements are being made because Duke "wants to" and not because it "has to," he said.

The surrounding community also can feel an economic impact as local people are hired in a county with high unemployment.

"We have used local contract companies with a peak work force of about 1,000 people. We expect to have projects of similar magnitude into 2014," Magee said.

Oconee, if built today as it currently stands, likely wouldn't meet the Nuclear Regulatory Commission

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requirements for new nuclear facilities though it operates safely and meets all current requirements, said NRC spokesman Roger Hannah told *The Greenville News*.

"It is unlikely that any of the current generation of plants could meet all the requirements under new li-

Clear inspection

Oconee recently received a clean annual review from the NRC, an indication that it meets all requirements — those set for an aging generation of nuclear power plants.

Design for second-generation plants, including Duke's proposed Cherokee County plant, differs from Oconee's design, so the comparison is "apples and oranges," Magee said.

When asked if Oconee would meet standards set for new nuclear power plants, Magee deferred the question to the NRC.

"The highest standard for any generation would be that you operate in a way that protects public safety," Magee said. "The design basis for generation 2 plants differs from the design Oconee was built to."

Critics still question the safety of an aging facility.

"Any upgrade for safety purposes implies that the current practice isn't sufficient," said Tom Clements, Southeastern nuclear campaign coordinator for Friends of Earth. "Should they have done this earlier if there was a safety question?"

Clements said he applauds the attempt to meet current safety standards, "but it still raises questions if the reactors are up to modern, present-day safety standards. The aging of nuclear plants and components is a growing concern on a daily basis because all of these plants are getting older and entering a more risky period of operation in their late middle age."

It comes down to money, said Bob Guild, a Columbia attorney involved in energy issues and vice chairman of South Carolina's chapter of the Sierra Club. The "old reactors out there" are more cost effective than building new ones, but aging "produces increased risk of failure."

The solution is to move away entirely from big energy such as nuclear and coal, educate the public on energy conservation, and use safer alternatives such as wind, solar and local small-scale power production, Guild said.

Renewed license

Oconee's original operating license would have expired in 2013 for Unit 1 and in 2014 for Units 2 and 3. The renewed operating license extends to 2033 for Unit 1 and 2034 for Units 2 and 3. Oconee is the second nuclear station in the United States to be granted an extension by the NRC.

Duke meets Thursday with NRC officials at the agency's Maryland headquarters to discuss "major plans" at Oconee, according to NRC documents.

Plans include analog to digital conversions in Oconee's three control rooms, new protection from an additional shut-down system, stronger walls to better protect against natural events such as tornadoes, and more, Magee said.

It's all part of $1 billion Duke has spent in the past five or six years and another $1 billion it plans to invest in the facility in the next five to six years.

The approximately $250,000 digital conversion recently was approved by the NRC to upgrade reactor protection systems and an engineered safeguard protection system. The approval was a first for any U.S. nuclear power plant, Magee said.

Other work includes a high energy line break and natural phenomenon barrier project that will take several years with an investment of close to $700 million when completed, Magee said.

The work involves piping systems that carry steam, hot water or hydraulic oil to systems in the reactor or other parts of the plant, Magee said. Because the lines are under high temperatures and pressure, Duke has contingency plans in case a line breaks and damages surrounding equipment needed to shut the reactor down or continue cooling.

The natural phenomenon barrier systems would protect against tornadoes and other natural events that could create projectiles, Magee said. Upgrades include strengthening walls, adding concrete barrier walls, and adding steel enclosures to protect some water storage tanks.