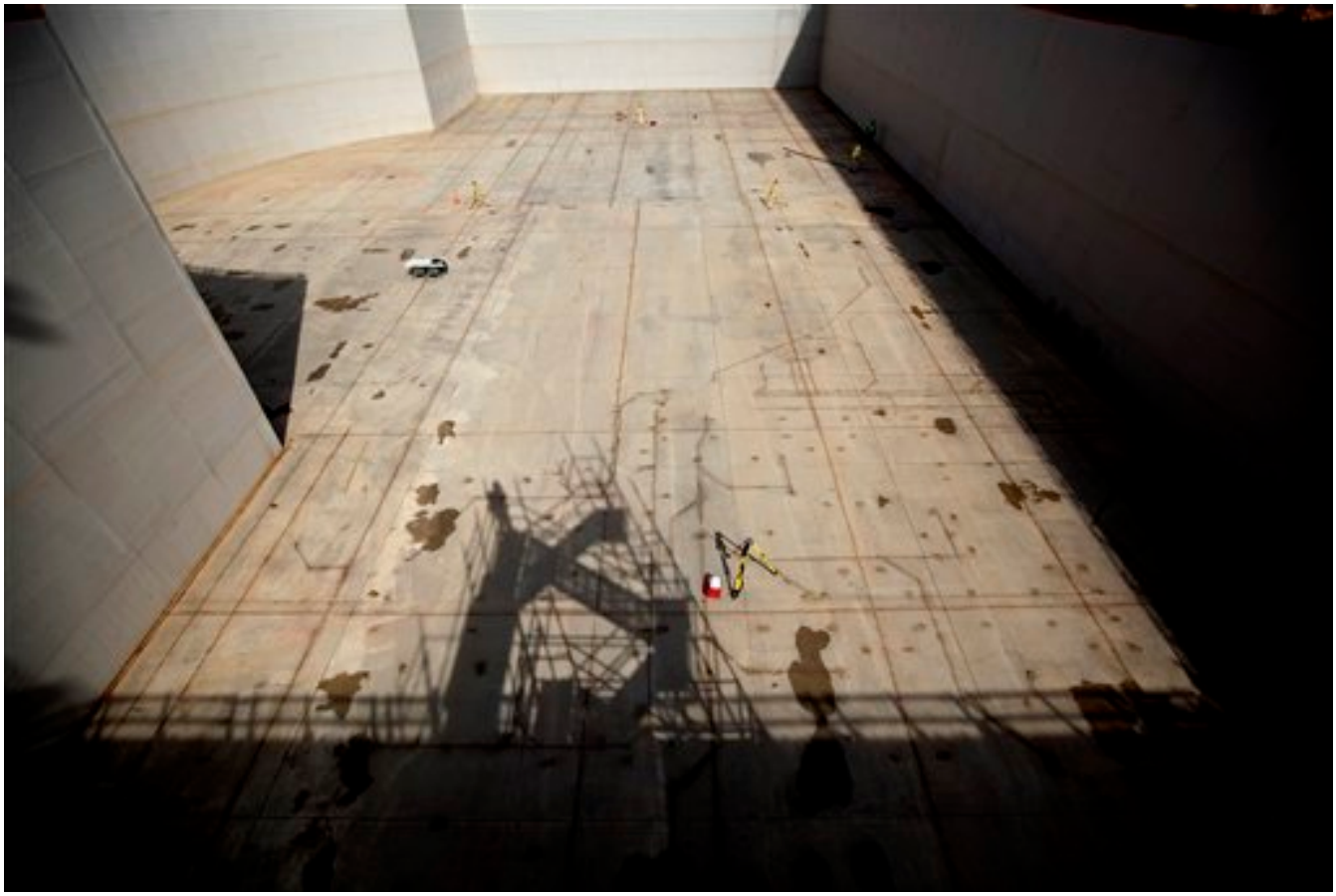
Building Costs Rise at U.S. Nuclear Sites



ATLANTA (AP) — America's first new nuclear plants in more than a decade are costing billions more to build and sometimes taking longer to deliver than planned, problems that could chill the industry's hopes for a jumpstart to the nation's new nuclear age.

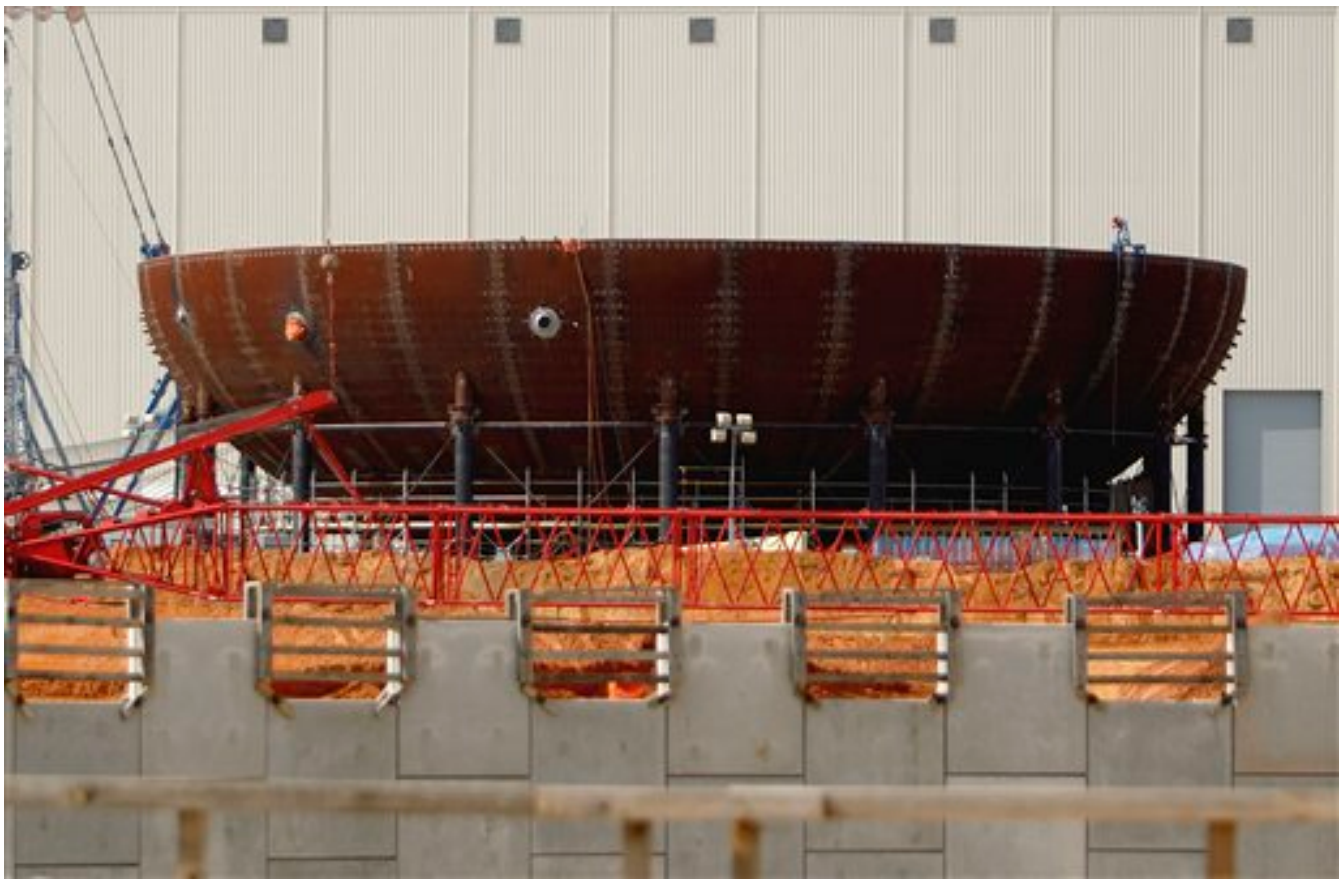
Licensing delay charges, soaring construction expenses and installation glitches as mundane as misshapen metal bars have driven up the costs of three plants in Georgia, Tennessee and South Carolina, from hundreds of millions to as much as $2 billion, according to an Associated Press analysis of public records and regulatory filings.

Those problems, along with jangled nerves from last year's meltdown in Japan and the lure of cheap natural gas, could discourage utilities from sinking cash into new reactors, experts said. The building slowdown would be another blow to the so-called nuclear renaissance, a drive over the past decade to build 30 new reactors to meet the country's growing power needs. Industry watchers now say that only a handful will be built this decade.

"People are looking at these things very carefully," said Richard Lester, head of the department of nuclear science and engineering at the Massachusetts Institute of Technology. Inexpensive gas alone, he said, "is casting a pretty long shadow over the prospects" for construction of new nuclear plants.

The AP's review of pending projects found:

— Plant Vogtle in eastern Georgia, initially estimated to cost $14 billion, has run into over $800 million in extra charges related to licensing delays. A state monitor has said bluntly that co-owner Southern Co. can't stick to its budget. The plant, whose first reactor was supposed to be operational by April 2016, is now delayed seven months.



— The long-mothballed Watts Bar power plant in eastern Tennessee, initially budgeted at $2.5 billion, will cost up to $2 billion more , the Tennessee Valley Authority concluded this spring. The utility said its initial budget underestimated how much work was needed to finish the plant and wasted money by not completing more design work before starting construction. The project had been targeted to finish in 2012, but has been postponed until 2015.

— Plant Summer in South Carolina, expected to cost around $10.5 billion, has seen costs jump by $670 million; but with lower interest rates and cheaper-than-expected labor; the owners assert the project is still on or under budget. A deadline to put the first new reactor online has been delayed from 2016 to 2017; the second reactor is now eight months ahead of schedule, targeted for early 2018.

Southern Co. and others in the nuclear business say cost overruns are expected in projects this complex, and that they are balanced out by other savings over the life of the plant. Southern Co. expects Plant Vogtle will cost $2 billion less to operate over its 60-year lifetime than initially projected because of anticipated tax breaks and historically low interest rates.

Regulators have been trying to make it easier to build, encouraging the use of off-the-shelf reactor designs that get approval in advance. New construction techniques are supposed to require less in-the-field assembly, making building quicker and reducing human error. Interest rates and labor costs have been down after a bruising recession.

"It's a down environment economically," said Steve Byrne, president of generation and transmission for SCANA's South Carolina Electric & Gas Co., one of the utilities building Plant Summer's reactors. "It's terrible for the country, but it's a great time to be building" a nuclear facility.

But the economy is also working against progress on new construction. The next company in line to build, Progress Energy, has pushed back construction plans for two reactors in Florida because of the economy, low demand and extremely cheap natural gas. It expects its first new reactor to be finished in 2024.

The plants burning natural gas are far cheaper to build than nuclear power plants. But utility executives say they need a diversified mix of power plants, including nuclear, because relying too heavily on a single fuel like natural gas backfires if prices go up.

The rising construction costs hit an industry already under financial pressure, after meltdowns last year at the Fukushima Dai-ichi nuclear plant after a tsunami in Japan. NRG Energy wrote off a $481 million investment in two planned reactors in Texas shortly after the accident, citing uncertainties after the Japanese disaster. Other utilities still seeking to build have said they expect the U.S. Nuclear Regulatory Commission will adopt new safety rules in response to the accident; they cannot predict the exact costs.

Industry leaders say the soaring costs could threaten projects that are worth the investment, and send the wrong message to the public.

"It's important to get this project done right because if every time we build a nuclear plant we go substantially over budget, ratepayers will begin to believe we can't do a nuclear project on budget," said Tim Echols, a nuclear power proponent who chairs Georgia's Public Service Commission.

An earlier push to expand the reach of nuclear power in the 1970s was thwarted by a number of obstacles: Electric companies overestimated demand and designed plants they didn't need. They had trouble managing massive construction workforces. Utilities designed nuclear plants as they built, leading to mistakes and slowdowns. Interest rates skyrocketed and the 1979 meltdown at the Three Mile Island nuclear plant in Pennsylvania forced plant operators to meet new rules at additional costs.

To win approval to build at Plant Vogtle, Southern Co. had to promise it would build its plant on budget, particularly as state officials remembered the massive cost overruns that occurred when it built the plant's two existing reactors, said Robert Baker, a former utility regulator who has criticized the project.

The utility has been authorized to spend just over $6.1 billion as its share of the estimated $14 billion project, which was tracking under budget at the end of last year.

Southern Co. is about seven months behind schedule, mostly because of the federal approval process for the reactor, according to company executives and filings. Southern Co. also faced delays in getting an important license allowing it to start building the guts of the plant.

Another, less exotic problem at Vogtle: At one point, workers built metal bars straight rather than curved, as regulators had directed, so Southern Co. had to rip them out and replace them. Crews in South Carolina, watching the progress at Vogtle, have halted the construction of those bars.

Plant Vogtle's designers and builders — Westinghouse Electric Co. and The Shaw Group Inc. — want Southern Co. to pay an additional $400 million for the licensing delays, according to a May report filed with the U.S. Securities and Exchange Commission. Southern Co. subsidiary Georgia Power, which owns nearly half the new plant, denies responsibility for those costs and is negotiating on behalf of all the owners. Financial information divulged by three companies who own 98 percent of the project show $838 million in potential charges.

It is unclear how much this could cost the utility's 2.4 million customers. Southern Co. earlier estimated typical residential customers would see a $10 increase in their monthly bills when both reactors are producing power in 2018. Utility regulators ultimately set the rates.

Similar issues have played out in central South Carolina, where SCANA Corp. and Santee Cooper won permission to build two reactors at Plant Summer, about 25 miles north of Columbia. SCANA agreed to pay $138 million in March to settle claims over licensing delays raised by the companies designing and building the reactor. Santee Cooper will pay nearly $113 million as its share of those costs, company officials said.

In May, SCANA asked utility regulators to raise its base spending on the project by $283 million, which includes the settlement related to licensing delays and extra costs for cyber security and staffing. However, the company said it will stay within its existing budget because it expects other expenses to be lower.

Supplying parts efficiently for the new reactors has also proved difficult. William Jacobs Jr., the state monitor hired by Georgia utility regulators, has publicly questioned whether a factory run by The Shaw Group can master quality control rules and deliver parts on time. NRC inspectors have faulted the facility for failing to maintain accurate records on the qualifications of workers. SCANA Corp. raised similar concerns.

Shaw spokeswoman Gentry Brann said the company has addressed the NRC's concerns.

In Tennessee, internal reviews faulted the Tennessee Valley Authority for not providing enough oversight on the project and for allowing a culture to develop that discouraged the sharing of bad news, for example, site problems that led to delays. Not enough engineering work was finished before construction started, meaning construction workers sometimes did not have enough work to do.

In an embarrassing episode, the TVA temporarily stopped work at the site in January after two mishaps revealed safety problems. No one was injured, and the operating plant did not experience any problems. In one case, workers removed a cable connected to equipment in the working reactor. In another, they cut out valves before getting proper clearance and verifying the system was safe.

Changes have been made to bring the project under control, said Mike Skaggs, who became the authority's senior vice president of nuclear construction in October. He said the TVA has carefully evaluated the remaining work on the reactor, slimmed down its workforce and made instructions to work crews easier to understand.

Skaggs has been involved in building two other nuclear plants and said the project requires constant monitoring.

"If you've got a good estimate, you use the estimate as a roadmap to complete the project," Skaggs said. "What I'm most worried about is the assumptions we've made in the estimate — are they ringing out true?"

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