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Xcel runs into nuclear economics

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As it weighs a possible upgrade to its aging Prairie Island reactors, Xcel Energy Inc. is finding the economics of nuclear power as challenging as the engineering.

Xcel's stalled plan to boost output of its nuclear power plant in Red Wing, Minn., faces cost concerns when state regulators later this month consider a scaled-back version of the utility's original proposal.

In March, the Minneapolis-based utility put the \$322 million project on hold, ceased engineering work and advised the state Public Utilities Commission, which had earlier approved the project, that it now offers less benefit to customers. Xcel says it still believes a scaled-back project -- boosting power about 12 percent vs. nearly 15 percent as originally planned -- is a good investment for ratepayers.

But Xcel said the project could be delayed until 2017 or even later, further complicating the economics.

With seven other U.S. reactors expected to seek major power upgrades in the next four years, the issues raised in Minnesota -- whether to invest heavily in older reactors -- could arise elsewhere.

Two groups that have long challenged Xcel over nuclear waste storage and environmental issues have raised concerns about the costs of generating more power at the plant. The twin reactors went on line in 1973-74 and are licensed to operate until the early 2030s.

"This looks like not a very good deal," said Paula Maccabee, a St. Paul attorney who represents a local citizens group called the Prairie Island Nuclear Generating Plant (PINGP) Study Group. "The economic benefit is very speculative, whereas the health and environmental cost are very real."

Similarly, the Prairie Island Indian Community, whose members live close to the power plant and have long expressed concerns about it, contend the need for the upgrade no longer exists because of lagging electrical demand -- an argument the tribe made unsuccessfully four years ago.

"The economic benefits simply aren't there -- if they ever were there," said Phil Mahowald, the tribe's general counsel. The tribe is seeking a hearing to argue its case.



Terry Pickens, director of nuclear regulatory policy for Xcel Energy walked by one of two steam powered generators at the plant. Steam is heated in the nuclear vessel. The Xcel Energy Prairie Island Nuclear Plant north of Red Wing is looking to boost electrical output at the plant.

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The Xcel Energy Prairie Island Nuclear Plant north of Red Wing is looking to boost electrical output at the plant. Tuesday, October 9, 2012

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Contractors perform some pre shutdown maintenance in the generator room. The Xcel Energy Prairie Island Nuclear Plant north of Red Wing is looking to boost electrical output at the plant. Tuesday, October 9, 2012

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Xcel has acknowledged those concerns, and in an interview at the power plant last week, Terry Pickens, the company's director of nuclear regulatory policy, said the risk of future delays related to federal safety reviews and refueling schedules could still make the project uneconomical. "We don't want to put our customers on the hook for any more if we decide not to move forward with it," he said.

Xcel keeping options open

Xcel's most recent cost estimate for a 12 percent power upgrade is \$294 million, of which \$57 million has already been spent, mostly on engineering. The aim is to add about 135 megawatts of generating capacity to the plant, which now produces about 1,100 megawatts. One megawatt will power about 750 homes.

So far, Xcel has achieved a 1.6 percent, or 18-megawatt, power increase solely from operational changes. Pickens said Xcel also has put bigger fuel rods in the reactor to boost output. But the next stage of the proposed upgrade -- replacing turbines and transformers during separate refueling outages in 2016-2017 or later -- is on hold. The remaining costs are expected to be further refined by Xcel and submitted to regulators.

Across the nation, electric utilities have long favored nuclear plant power upgrades as a way to generate more electricity without building new power plants. A quarter of the nation's 104 power reactors have undergone what's called "extended power uprates" since 1998. These upgrades boosted electrical output from 7 percent to 20 percent per plant -- the equivalent of adding eight new reactors.

Xcel has delayed, but is still moving ahead with a project to increase the output of its Monticello, Minn., nuclear reactor. Last year, Xcel said it needed more time to address U.S. Nuclear Regulatory Commission (NRC) concerns about emergency reactor core cooling capability related to the upgrade.

In reactors like those at Prairie Island, safety issues have arisen in some uprates over steam generators that convert hot reactor water to steam that drives turbines. Pickens said Xcel is replacing the second of the plant's two steam units next year, and has chosen equipment that hasn't been a problem for power uprates.

State agency supports upgrade

Xcel has won some support for moving ahead with the Prairie Island upgrade.

The state Commerce Department Energy Resources Division, which analyzes utility decisions on behalf of ratepayers, has concluded that the power upgrade still makes economic sense and is in the public interest, according to a regulatory filing in June. The department declined to comment on its position last week.

State regulators are scheduled to consider the Prairie Island upgrade on Oct. 25, but a final decision could be months away if the PUC orders a hearing. Even if the project wins state endorsement as a sound investment, Xcel still needs approval from the NRC, which regulates plant safety. Those reviews typically take a year, though some have gone longer, which is a concern of Xcel's. Because licenses to operate the two units expire in 2033 and 2034, unanticipated delays would affect the overall economics of the uprate project.

The Minnesota Chamber of Commerce, which often speaks for business in utility cases, has generally supported projects, such as this one, that increase base-load generation -- the power that's needed all the time to serve customers.

Bill Blazar, the chamber's senior vice president for public affairs, said he is concerned that customers don't get stuck paying higher bills to cover the cost of upgrading Prairie Island, a plant that faces eventual retirement. He said regulators need to assure that electricity from the plant is competitively priced.

"Customers are more sensitive than ever about the cost of electricity," he said.

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