

Nuclear

Prospects dim for new nuclear reactors

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Just a few years ago, the economic prognosis for new nuclear reactors looked bright. The prospect of growing electricity demand, probable caps on carbon dioxide emissions and government loan guarantees prompted companies to tell the U.S. Nuclear Regulatory Commission that they wanted to build 28 new reactors in the United States.

The economic slump, which has driven down demand and the price of competing energy sources, and the failure of the U.S. Congress to pass climate legislation have changed all that, at least for now.

Constellation Energy's announcement Saturday that it had reached an impasse with the U.S. government over the fee for a loan guarantee on a new reactor in Maryland was a sign of how much the landscape had been transformed.

Essentially, the Energy Department argued that Constellation's project was so risky that the company must pay a high fee or provide other assurances of repayment if it wanted taxpayers to guarantee its construction loans. Constellation said the government's demand was "unreasonably burdensome."

The U.S. government is hardly the only entity to question the economics of nuclear power right now. The would be builders of seven reactors around the United States have deferred their projects in the past few months.

J. Scott Peterson, a spokesman for the Nuclear Energy Institute, the industry's trade group, said the "pause" in nuclear building plans mirrored delays in other industrial projects. "It's principally because of the economic situation," he said.

One major factor driving the cautions stance of both the industry and the government is the fall in demand for electricity, which peaked in 2007. In 2009, demand slid more than 4 percent from 2007. So far, it seems that demand in 2010 will be higher than last year, but not as high as 2007. These are big changes for an industry that is accustomed to growth on the order of 1 percent to 3 percent a year. With slack demand, there is less urgency to build new plants.

The plunge in the price of natural gas has also made nuclear power far less competitive. The year the recession began, 2008 the standard unit of natural gas one million British Thermal units, sold for an average of \$7.96 at the well head. Last year the same amount of gas cost just \$3.71, according to preliminary Energy Department figures, and for the first six months of this year, it cost \$4.43.

A return to strong economic growth would push up the demand for electricity and for natural gas prices may remain low because a technology called hydraulic fracturing has hugely increased the estimate of recoverable reserves.

Also weighing on the nuclear industry is the unwillingness of the U.S. Congress to pass climate change legislation that would put a price of some sort on carbon dioxide emissions. Since nuclear power produces no carbon emissions, it would gain a competitive edge against coal and natural gas if a bill were passed but while such legislation once seemed likely, sharp divisions in congress and concerns about the tottering economy have stalled its prospects.

Putting all that together, the Energy Department evaluated Constellation's proposal the way a bank would look at a prospective credit card customer or home buyer, and set the fee according to the borrower's creditworthiness. Under a program created by Congress, Constellation was seeking a guarantee for 80 percent of the cost of the project: The government settled on a fee of \$880 million, or 11.6 percent of the \$7.6 billion loan, according to Constellation. In a letter to the Energy Department, the company called the figure "shockingly high" and said it would doom the project.

Other companies have looked at the economics of building new nuclear reactors and decide to wait. In September, Exelon, the largest nuclear operator in the United States, stepped back from a plan to build a twin unit reactor plant in Texas and decided to simply seek approval for the site, which would save it some time if it decided later to build.

Exelon said it needed natural gas prices to reach about \$8 per million B.T.U. almost double the current price – and a carbon fee of \$25 a ton to make the project worthwhile economically. “We don’t have the right stimulus right now,” said Christopher M. Crane, president and chief operating officer, in a recent interview.

Two utilities in Florida, Progress Energy and FPL, want to build twin unit reactors but have slowed there projects. A utility in Missouri has backed away from a plan to build a carbon copy of the Constellation Maryland reactor.

Nuclear plant operators like Exelon and Constellation face particular challenges because after deregulation in their states they must compete against other energy suppliers to sell electricity to the companies that actually distribute energy to customers.

Two nuclear projects that have gone forward – in Georgia and South Carolina – are in states where the utilities building them also distribute the electricity and operate under regulatory rules that virtually guarantee them a financial return: whatever the companies spend to generate power, the customers will be required to pay for, unless regulators decide the expenses were not “prudent”. That regulatory compact is so strong that the South Carolina project, on the site of the existing V.C. Summer reactor, has begun work without a loan guarantee.

In Constellation’s case the Energy department proposed that Constellation reduce the risk of financial failure by signing a contract with its regulated subsidiary, Baltimore Gas & Electric, to buy 75 percent of the new reactor’s output at a price that would allow Constellation to repay the loan. That idea would require the approval of state regulators, but state officials have generally favored construction of the reactor.

Such a contract would limit the upside profit potential for the builder, however, and Constellation has not pursued the idea.

A spokeswoman for the Energy Department, Stephanie Mueller, said the parties were still working on a compromise. “We urge Constellation and its partner to examine the latest terms and continue working on this project,” she said, emphasizing its importance for bringing about a clean – energy economy and creating much needed jobs.

Some nuclear advocates say that pure economics should not be an overriding concern.

Constellation Energy argues that its reactor is less risky than the government assessment indicated. The Maryland reactor would be the sixth or seventh instance of a new design, with Finland, France and China working out the kinks first, according to James L. Connaughton, executive vice president of Constellation Energy.

Still, those kinks have caused major construction delays and cost overruns at both Flamanville, in France, and Olkiluoto, in Finland, where the first two reactors using the design are being built, industry analysts noted.

Mr. Connaughton said that Constellation and its partner, EDF, are experienced at this kind of job, and thus the fee from the government should be 1 percent or 2 percent of the guarantee. The reactor’s construction would provide thousands of well – paying jobs and clean power for decades he said, if only the government would make a more realistic assessment of risk.

But Michael Mariotte, executive director of the antinuclear group Nuclear Information and Resource Service, predicted that Constellation and the nuclear industry would experience no renaissance for the most simple of reasons: “nuclear reactors make no economic sense.”

