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Nuclear Industry Futures

Dominion Energy Getting License for Third Reactor at North Anna

June 1, 2017-Dominion has spent about $600 million planning a third reactor at its North Anna nuclear power station near Mineral. Building the reactor would cost an estimated $19 billion. Dominion Energy operates the North Anna nuclear power station in Mineral. The federal Nuclear Regulatory Commission says it will issue a license in the next few days for a proposed third nuclear reactor at Dominion Energy's North Anna plant near Mineral in Louisa County. However, given the massive cost of the controversial project, which has been opposed by both consumer and environmental groups and has yet to be approved by the State Corporation Commission, it remains unclear whether the utility will actually build the reactor. "Basically, having a combined operating license allows us the ability to build and operate a new unit at such time as makes business sense," said Richard Zuercher, a Dominion spokesman. Richmond-based Dominion has spent roughly $600 million to date on planning, engineering and developing the 1,600-megawatt General Electric-Hitachi-designed reactor. Actually building the reactor is estimated to cost about $19 billion.

The NRC's decision comes after it determined in January that there were no "safety aspects" that would prevent the issuance of the license, including a seismic analysis that included data from the magnitude-5.8 earthquake that struck Mineral on Aug. 23, 2011. "The commission found the staff's review of Dominion's application to be adequate to make the necessary regulatory safety and environmental findings," the NRC said in a statement Wednesday. The commission did impose conditions, including mitigation strategies and other requirements related to the 2011 meltdown at the Fukushima

Daiichi reactors in Japan, triggered by an earthquake and tsunami. "It's been thoroughly evaluated against the earthquake that actually happened at North Anna," Zuercher said. "The NRC looks very closely at that. They are fine with what we have done. It meets the new criteria for seismic activity in the region." About 40 percent of Virginia's electricity comes from Dominion's nuclear reactors at North Anna and Surry, and the company plans to seek approval to

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Inside this issue:

Exelon Completes Purchase of 849 MW FitzPatrick Reactor in New York

May 31, 2017-Exelon Generation on Friday assumed the ownership of the 849-MW FitzPatrick nuclear reactor in Scriba, New York, completing a transaction with Entergy begun last summer, it said. The sale averts the permanent shutdown of the upstate New Your reactor that had been scheduled for January, following a November 2015 announcement by Entergy that it was unprofitable and efforts to reach an agreement with New York state to provide unspecified "incentives" to keep the unit operating proved fruitless. Entergy in August announced it had reached an agreement to sell FitzPatrick to Exelon for $110 million, contingent on the New York Public Service Commission enacting a Clean Energy Standard containing zero-emissions credits, or ZECs, that would be available to this unit, as well as Exelon's

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Three Mile Island To Close In 2019 - 15 Years Early

May 30, 2017 - Cheap natural gas could do what the worst commercial nuclear power accident in U.S. history could not: put Three Mile Island out of business.

Three Mile Island's owner, Exelon Corp., announced Tuesday that the plant that was the site of a terrifying partial meltdown in 1979 will close in 2019 unless the state of Pennsylvania comes to its financial rescue. Nuclear power plants around the U.S. have been struggling in recent years to compete with generating stations that burn plentiful and inexpensive natural gas to produce electricity.

The Chicago-based energy company's announcement came after what it called more than five years of losses at the single-reactor plant and Three Mile Island's recent failure to be selected as a guaranteed supplier of power to the regional electric grid.

Exelon wants Pennsylvania to give nuclear power the kind of preferential treatment and premium payments that are extended to renewable forms of energy, such as wind and solar. It has not said how much it wants.

Pennsylvania Gov. Tom Wolf has made no commitment to a bailout. In a statement Tuesday, Wolf said he is concerned about layoffs at Three Mile Island and open to discussions about the future of nuclear power. Exelon employs 675 people at the plant, whose license does not expire until 2034.

Nuclear bailouts have won approval in Illinois and New York, but the potential for higher utility bills in Pennsylvania is generating resistance from rival energy companies, manufacturers and consumer advocates. David Hughes, president of the Pittsburgh-based consumer group Citizen Power, said the notion that nuclear power is clean energy, as the industry argues, is laughable.

"It's a myth, and they're trying any way they can to get more money out of ratepayers," he said. In addition to contending that nuclear power can help fight climate change better than gas or coal, Exelon and other energy companies have argued that their plants are big employers and sources of tax revenue. "Like New York and Illinois before it, the commonwealth has an opportunity to take a leadership role by implementing a policy solution to preserve its nuclear energy facilities and the clean, reliable energy and good-paying jobs they provide," Chris Crane,

Exelon president and CEO, said in a statement. Around the U.S., nuclear plants have been hammered by the natural gas boom. In December, Illinois approved $235 million a year for Exelon to prop up nuclear plants in the Quad Cities and Clinton, six months after the company threatened to shut them down. In addition to contending that nuclear power can help fight climate change better than gas or coal, Exelon and other energy companies have argued that their plants are big employers and sources of tax revenue.

"Like New York and Illinois before it, the commonwealth has an opportunity to take a leadership role by implementing a policy solution to preserve its nuclear energy facilities and the clean, reliable energy and good-paying jobs they provide," Chris Crane, Exelon president and CEO, said in a statement. Around the U.S., nuclear plants have been hammered by the natural gas boom. In December, Illinois approved $235 million a year for Exelon to prop up nuclear plants in the Quad Cities and Clinton, six months after the company threatened to shut them down.

(Marc Levy, Associated Press)

Exelon Completes Purchase of 849 MW FitzPatrick Reactor in New York

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597-MW Ginna, 640-MW Nine Mile Point-1 and 1,362-MW Nine Mile Point-2 reactors. The PSC on March 24 issued an order that finalized the implementation of the ZEC program from Saturday. A ZEC is an off-take agreement for the purchase of power to ensure the continued operation of a generator. It sets a price to purchase power that may be above prevailing rates in order to provide financial support to a generator. Under the agreement with Entergy, Exelon agreed to purchase fuel to refuel FitzPatrick, which was conducted January 14 to February 25, when the unit synchronized with the electricity grid. Exelon also agreed to "reinvest ... approximately $400-500 million in operations, integration and refueling expenditures for the [three] upstate plants," the company said.. FitzPatrick, whose operating license expires in October 2034, is adjacent to Exelon's Nine Mile Point-1 and -2 reactors. ZECs paid to designated nuclear generators under the New York plan are $19.59/MWh for the period from April 1, 2019 to March 31, 2021. The ZECs were set tentatively at $21.38/MWh for April 1, 2021-March 31, 2023; $23.83/MWh, April 1, 2023- March 31, 2025; $26.45/MWh, April 1, 2025-March 31, 2027; and $29.15/MWh, April 1, 2027-March 31, 2029. The PSC program is still facing a legal challenge. Dynegy, Eastern Generation, NRG Energy, Roseton Generating and Selkirk Cogen Partners and the Electric Power Supply Association contended in a lawsuit the PSC's plan usurps the US Federal Energy Regulatory Commission's "exclusive authority" to regulate the sale of wholesale electricity across state lines, according to the suit filed October 19 in the US District Court for the Southern District of New York in New York City. The court on Wednesday heard oral arguments on a motion by the state of New York to dismiss the suit and ordered the state and the plaintiffs to file briefs in the matter. The Nuclear Regulatory Commission on March 1 approved the transfer of the operating license for FitzPatrick to Exelon, which was the final required regulatory approval needed for the sale. The transfer took place Friday. The PSC on November 17 approved Entergy's application to transfer FitzPatrick's operating license to Exelon. FERC, in a December 7 order, determined that Exelon's purchase of FitzPatrick, enlarging its upstate New York nuclear fleet, would not give the Chicago-based Exelon undue market power to set rates and would not materially affect wholesale electricity prices. Exelon's acquisition of FitzPatrick, FERC said, "will not have an adverse effect on vertical competition," noting the purchase agreement "only involves those limited and discrete transmission facilities necessary to interconnect the FitzPatrick facility to the transmission grid."

(Written by Jim Ostroff, edited by Keiron Greenhalgh, Washington - Platts)

New Research Reactor Fuel Irradiation Tests Completed

April 27, 2017 - A plate-type uranium-molybdenum (U-Mo) fuel for research reactors has completed performance tests in the USA. The fuel could be used to replace highly-enriched uranium fuel (HEU), which can pose a proliferation risk. In 2012, Belgium, France, South Korea and the USA agreed to cooperate in the development of high-density low-enriched uranium (LEU) fuel production technology using centrifugal atomization technology developed by the Korea Atomic Energy Research Institute (KAERI). The aim is to reduce the use of HEU as fuel in civil research reactors. The USA provided 110 kilograms of LEU in June 2013 for KAERI to manufacture 100kg of atomized U-Mo powder. In January 2014, the powder was shipped to France for fabrication into fuel elements by Areva's research reactor fuel manufacturer CERCA.

Testing of the experimental U-Mo fuel began in the Advanced Test Reactor at the Idaho National Laboratory in October 2015. KAERI announced on April 26, 2017, the successful completion of those verification tests. The U-Mo fuel has a higher level of uranium density than uranium-silicon fuel, so it can use LEU instead of HEU. The fuel can also improve the performance of research reactors, according to KAERI. KAERI said the results from the testing of the fuel will be used to obtain a construction license for a new research reactor planned in Busan, which it hopes will be the first application for the U-Mo fuel.

(Researched and written by World Nuclear News)

GAO Identifies Key Steps for Yucca Mountain Licensing

May 30, 2017 - The US Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) will need to rebuild their organizational capabilities in order to restart the suspended licensing process for the Yucca Mountain high-level radioactive waste repository, according to the Government Accountability Office (GAO).

US nuclear waste management policy is enshrined in the 1982 Nuclear Waste Policy Act, which established federal responsibility for all civil used fuel and obliged the government - through the DOE - to begin removing used fuel from nuclear facilities by 1998 for disposal in a federal facility. The act was amended in 1987 to designate Yucca Mountain in Nevada as the sole site for the repository for 70,000 tonnes of high-level waste.

The DOE submitted a construction license application for the Yucca Mountain repository to the NRC in 2008, but following 2009's presidential elections the Obama administration subsequently decided to abort the project, appointing a high-level Blue Ribbon Commission to come up with alternative strategies.

The NRC terminated licensing activities for Yucca Mountain in 2011, but in August 2013 was ordered to resume work on its technical and environmental reviews of the application by the US Court of Appeals. NRC staff completed and published the final volumes of the safety evaluation report in January 2015 and completed and issued an Environmental Impact Statement supplement in May 2016. The adjudicatory hearing, which must be completed before a licensing decision can be made, remains suspended.

GAO was asked by the House of Representatives' Committee on Energy and Commerce to examine the likely steps needed to resume the Yucca Mountain licensing process. GAO reviewed federal laws and documents; interviewed DOE and NRC officials and contractors; and interviewed or received written remarks from 15 of the 17 non-federal parties. It has now published its report - titled *Commercial nuclear waste: Resuming licensing of the Yucca Mountain repository would require rebuilding capacity at DOE and NRC, among other key steps*.

The report examines the actions that took place after DOE submitted its motion to withdraw its application and any plans by DOE or NRC to resume the licensing process. It also considers the likely key steps needed to resume and complete the process.

The GAO identifies four key steps that would be needed to resume and complete the licensing process.

GAO said the NRC must firstly receive direction to resume the Yucca Mountain licensing process. The five-member commission must also decide on several aspects of the process, including the timeline for its completion and whether relevant regulations require updating. This will enable NRC, DOE and other parties involved to identify the costs involved and to obtain the necessary funding.

Secondly, DOE, NRC and non-federal parties will need to rebuild their organisational capabilities, including the rehiring or recruiting legal, scientific and other experts. NRC and DOE will also need to update documents for the licensing process, including the license application and the environmental impact statement.

The NRC and its Atomic Safety and Licensing Boards will then need to issue orders for the resumption of the adjudication. Hearings would then be held on the safety and other aspects of the proposed repository.

On completion of the adjudication, the NRC would then examine the totality of the information and decide whether or not to issue a construction license for the project.

GAO identified a number of factors that could affect the time needed to resume and complete the licensing process. "At present, there are at least two unresolved legal issues that would need to be addressed and that could affect the timeline for completing the licensing process," GAO said. It said the DOE may need to acquire the land and water rights it needs for construction authorization. In addition, a legal challenge questioning NRC's changes to its safety regulations for the repository's expected period of performance could also prolong the timeline.

GAO said it provided NRC and DOE with a draft of its report for comment. "NRC generally agreed with our findings," it said. "DOE did not indicate whether it generally agreed or disagreed."

(Researched and written by World Nuclear News)

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extend the licenses of those power plants. “Nuclear energy is important to Virginia and our customers because it provides significant amounts of affordable base-load electricity with virtually no carbon dioxide emissions,” said Thomas F. Farrell II, Dominion’s chairman, president and CEO. “It is the largest form of carbon-free, base-load electricity on our system. We will continue to evaluate developments over the coming months as we determine next steps related to the timing of North Anna 3.”The Virginia chapter of the Sierra Club called on Dominion to scrap the third reactor at the North Anna plant.

“In the face of billion-dollar cost overruns and bankruptcies associated with new nuclear reactors in states like Georgia, the North Anna 3 project is a $20 billion boondoggle that Dominion must abandon,” said Kate Addleson, the director of the Virginia chapter. “A high-priced nuclear reactor doesn’t make sense when clean energy solutions like solar and wind are the least expensive new forms of energy to install.”

(Written by Robert Zullo Richmond Times-Dispatch)

Like Three Mile Island, Talen Energy's Nuclear Plant Under Pressure

June 1, 2017-Allentown-based Talen Energy's Susquehanna nuclear power plant, which opened in the early 1980s, has two reactors, each capable of generating enough electricity to power about 1 million homes.

But it's unclear how far into the future that generation will continue, following Tuesday's announcement that Exelon Corp. plans to close its Three Mile Island reactor near Harrisburg in 2019.

The move would shutter one of Pennsylvania's five nuclear power plants, which have been increasingly pressured by competition from cheaper natural gas and subsidized renewables such as wind and solar power.

While there are some key differences between Three Mile Island and Talen's nuclear plant in Luzerne County, near Berwick, experts agree the headwinds that drove Three Mile Island to five consecutive years of financial losses are not isolated to one reactor. Now it may be up to state policymakers to decide whether the nuclear industry has a long-term future in Pennsylvania.

Talen on Tuesday declined to comment specifically about the news of Three Mile Island's closure or any speculation about the future of its Susquehanna plant. Spokesman Todd Martin did say, however, that Talen wants to be a participant in future negotiations with stakeholders.

"That said, we are participating in the discussions about the value of nuclear in Pennsylvania and across the country," Martin said.

The pressures on the nuclear industry were highlighted in a recent auction held by PJM Interconnection, the world's largest competitive power market that procures power supply resources three years in advance to ensure power supplies will be available during extreme weather or other emergencies. Exelon announced last week that Three Mile Island — for the third year in a row — was shut out of the auction.While it's unknown whether Talen's Susquehanna plant was able to sell power in the latest auction, a report from Swiss financial services firm UBS last

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Like Three Mile Island, Talen Energy's Nuclear Plant Under Pressure

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week noted Talen appears to be one of the independent power producers suffering the most from the auction. The report also raised the question of whether the reduced price levels will be sufficient for Talen to keep operating the Susquehanna nuclear plant.

"There are real pressures on the nuclear industry and those are, in some senses, concentrated and magnified by the cheap shale gas," said Julien Dumoulin-Smith, a UBS analyst who co-authored the report last week.

Nuclear plants also have struggled to compete from an operational cost standpoint, especially when considering Talen's Susquehanna plant employs more than 1,000 people. By comparison, a natural gas generating power plant being built near the Susquehanna plant will need only about 25 employees when it's operational, at which point it will be capable of supplying power to about 900,000 homes. Dumoulin-Smith declined to discuss specific plants when reached by phone Tuesday, but he did say single-unit sites — such as Three Mile Island — are most susceptible to the challenges weighing on the entire industry.

"The question is going to be, 'Does one of these sites need to be retired for action to be done?'" Dumoulin-Smith said.

That action will have to come from state policymakers. Gov. Tom Wolf has made no commitment to a bailout but said in a statement Tuesday that he is concerned about layoffs at Three Mile Island and open to discussions. Meanwhile, a recently formed state Nuclear Energy Caucus, a group of lawmakers that wants to keep the state's five nuclear plants operating, said in a statement that closing Three Mile Island has the state facing "serious and consequential underlying issues" in its energy sector.

(Jon Harris and Anthony Salamone, Reporters of The Morning Call) (AP)

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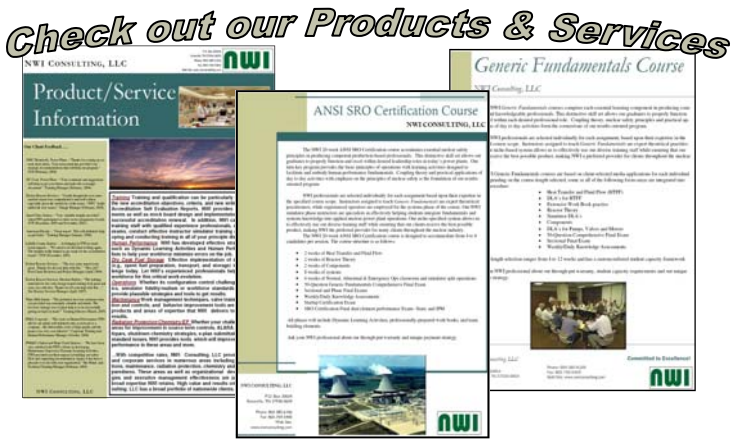

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