

Will natural gas surge mean lights out for nuclear?

BY KATE SPRINGER
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Following the Fukushima nuclear disaster, utility companies overseas and across the U.S. have halted or cancelled plans to build nuclear power plants, the latest being NRG Energy Inc. in Texas.

But in many cases it's not the disaster that is causing hold-ups. It's the promise of natural gas.

With some of the lowest and most stable natural gas prices in U.S. history, building new nuclear facilities is no longer a viable option in competitive markets, experts say. That's true even for Exelon Corp., operator of the nation's largest fleet of nuclear power plants.

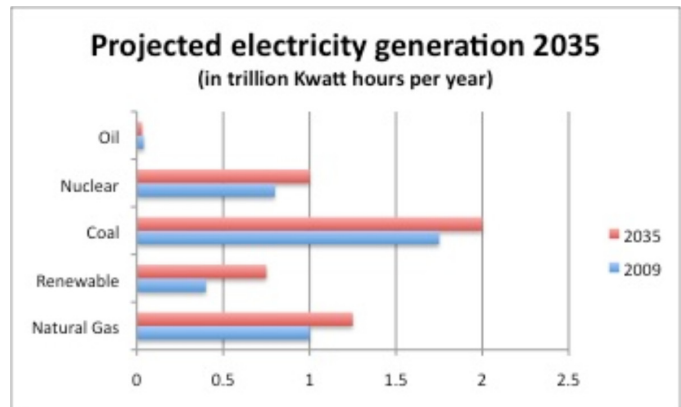
Because Exelon's future parallels the power industry's, the Chicago-based company expects natural gas to affect its investments for years to come.

"The problem will be that low natural gas prices will inhibit building new nuclear plants, because low natural gas prices hold down electricity prices," said Judith Rader, Exelon's senior external communications manager. "We were exploring building a nuclear plant in Victoria, Texas, but we have scaled back plans, because it's no longer economical to do so."

Exelon, which has six of its 11 nuclear facilities in Illinois, has not been able to build new nuclear plants in the state for the past 25 years, because of a state moratorium.



View Chicago lights from the International Space Station. Image by NASA



By 2035, the Energy Information Association predicts nuclear will account for 1 trillion Kilowatt-hours per year, according to its 2010 Shale Gas and U.S. Energy Outlook Recent Developments report.

Last week an Exelon critic, the Citizens Utility Board, conducted a survey asking residents whether or not the Illinois' moratorium should end. About 59 percent of 1,300 respondents said "yes, it should."

But even if legislation were to change, Exelon has no plans to build.

"If wholesale electricity prices are low," she added, "it makes it hard to justify building a new nuclear plant because you can't sell that electricity at a cost that will recoup our investment."

Exelon isn't shirking modernization of its vast facilities.

For the fourth quarter of 2010, Exelon reported capital expenditures of \$3.46 billion, but analyst Angie Storzynski of Macquarie Group Ltd. ABN said the trajectory is not "particularly good."

"Exelon has no plans to build more plants—nuclear, gas or otherwise," said Storzynski. "When you read any single newspaper writing about what Exelon is going to do next, the fact is they aren't going to do anything."

Morningstar Inc. analyst Travis Miller believes Exelon will continue to be successful.

"Its ability to produce low-cost electricity with minimal greenhouse gas emissions should produce substantial, sustainable, and growing shareholder value for many years, regardless of what path power prices take," wrote Miller in a February research note.

Though it is more cost-effective to build a natural gas plant at this point, Rader said that this does not mean Exelon will push into natural gas.

"We don't generate a lot of power from natural gas, in fact, less than 1 percent comes from oil or natural gas," she said. "But it's reshaping our industry."

According to its website, Exelon generates 93 percent of its owned power from nuclear, 5 percent from coal, 1 percent from natural gas, 1 percent from oil, and 1 percent from renewable energies such as wind, solar and hydro.

Over the past decade, natural gas prices have dropped from approximately \$12 per million British thermal units to \$4 per MMBtu thanks to shale gas reserves discovered across the country.

The most recent discoveries stretch across Pennsylvania and New York's Marcellus reserve, according to the U.S. Energy Information Administration.

The Marcellus reserve, known as the Saudi Arabia of natural gas, underlies more than 95,000 square miles and holds an estimated 1.135 trillion cubic feet of recoverable shale gas, according to IHS Inc., a global information company.

Natural gas is experiencing this upswing thanks to a drilling technique called hydraulic fracturing, or "fracking," that breaks through hard rock formations. But scientists and consultants are divided when it

comes to natural gas's role in the future and what its abundance means for nuclear, pollution and fresh water resources.

"The energy is cheap now," said Mark Prelas, director of research at the University of Missouri's Nuclear Science and Engineering Institute, "but it will not be cheap forever."

Prelas predicts that by 2030, fresh water shortages may cause natural gas prices to skyrocket, because fracking is a water-intensive process.

"In the future, when you start seeing problems with natural gas prices, Exelon's fleet will most likely still be intact," he said.

He also warned against potential ground-water pollution from fracking.

"The environmental issues are not being addressed appropriately and this waste water is going to be a continuous problem," said Prelas. "The more you drill, the more you are going to have to deal with it."

Other experts don't view nuclear and renewable energy sources as fuels of the future.

"Natural gas is the only available fuel source that can fill the gap of retiring coal," said Brian Habacivch, senior vice president of Fellon-McCord & Associates LLC, an energy management firm based in Louisville, Ky.

Habacivch doesn't view nuclear and renewable energy sources as fuels of the future.

"It looks like the nuclear revolution is falling apart pretty quickly," said Habacivch. "Constellation [Energy] pulled their plug, so did NRG."

"If we're not building more nuclear and we're going to retire coal, the only thing that can fill that gap in the next five to 10 years is natural gas, but coal will play a part, too," he said.

According to the Energy Information Administration, electricity use will increase 39 percent by 2030 and natural gas will account for 57 percent of new electricity-generation capacity built by 2025.

Some energy experts argue that nuclear could be priced out of the market and eventually decommissioned.

"The risk, long-term planning, engineering and local opposition make nuclear facilities very challenging to build," said David Schieren, CEO of EmPower SolarCES LLC and executive committee member of the Greater Long Island Clean Cities Coalition.

Sterling Burnett, lead analyst of the National Center for Policy Analysis in Texas, said natural gas will be the future's big energy winner, but nuclear will not disappear.

"Natural gas will be the fuel of the future. Everyone predicts that, and I believe they are 100 percent correct," said Burnett.

Though he expects the natural gas rush will cause nuclear to falter by 2025, Burnett said that in the long run nuclear could re-emerge.

“By 2050, that could turn around,” Burnett said. “If technology evolves and companies focus on modular reactors and micro-nukes, which are safer and less expensive, and we start recycling spent nuclear fuel like in France, then it could take off.”

Others say nuclear is still very much on the table as part of the future’s energy portfolio.

Natural gas will be an important transition fuel as we work toward new energies, but nuclear will not disappear, said Raymond Orbach, former under secretary of the U.S. Department of Energy and director of the Energy Institute at the University of Texas at Austin.

Though he said the U.S. may see natural gas used for more and more electricity in the future, Orbach expects nuclear to remain a major player.

“Nuclear is going to have to face competitive pressures, but it’s an almost unlimited source,” said Orbach.

A study by Daniel LaGatta of GEI Consultants Inc., a consultant to electric power providers, predicts that the U.S. will need an additional 35 to 40 nuclear plants by 2035 if nuclear is to continue to provide 20 percent of our base-load need.

Presently, Illinois ranks No. 1 in nuclear-generated electricity with 48 percent, compared with 20 percent nationwide, according to the Clean and Safe Energy Coalition.

By 2025, the Illinois EPA will require 25 percent of the electricity supply to be from renewable energies and Exelon has its own goals of lowering its carbon footprint through decommissioning coal plants, upgrading present nuclear facilities and energy efficiency programs.

Exelon’s nuclear fleet produces more than 130 million megawatt-hours of power annually – enough to power 11.5 million homes – with virtually no greenhouse gas emissions, according to Exelon's 2020 plan.

In the plan established in 2008, Exelon vowed to reduce, offset or displace at least 15 million tons of greenhouse gas emissions per year by 2020. By 2010, Exelon achieved more than half of its goal.

Despite both optimistic and dire predictions for the future of nuclear, Exelon expects its plants to remain profitable, especially after a series of upgrades, also known as “uprates.”

By design, every nuclear plant in the US can be upgraded, a process that can increase a reactor’s power output by 10 percent to 20 percent, according to the Nuclear Regulatory Commission.

Through 2017, Exelon plans to uprate its nuclear fleet by between 1,300 and 1,500 MW of additional generation capacity, the equivalent of a new advanced nuclear reactor. This process would displace 8 million metric tons of carbon dioxide emissions annually, according to the 2020 plan.

Uprate projects are underway at Exelon's Braidwood, Byron, Dresden, LaSalle and Quad Cities plants in Illinois, and Limerick and Peach Bottom plants in Pennsylvania.

"If the economics don't support individual projects due to natural gas prices or potential increased regulation, our uprate projects have always had off-ramps," said Rader.

Though Rader could not provide financial outlooks further than one year ahead, the company expects its 2011 full-year operating earnings to be between \$3.90 and \$4.20 per share.

Wall Street analysts estimate Exelon's target price per share during 2011 to be \$4.08. In 2012, they estimate, the price will decrease to \$2.97, then hold steady at \$2.95 during 2013.

Exelon stock is relatively cheap compared to the industry, with a trailing price-earnings ratio of 9.99.

Exelon stock closed up 40 cents at \$41.17 Tuesday.