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New York Throws Struggling Nuclear Generators a Lifeline, but Their Long-Term Survival Remains Uncertain

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Nuclear generators in New York are breathing a collective sigh of relief this week after the state Public Service Commission (PSC) on Monday approved a new [Clean Energy Standard](#) (CES), providing nearly \$500 million in annual subsidies for generating facilities experiencing financial difficulties. Continued operation of nuclear facilities is seen as vital to achieve the 2015 New York [State Energy Plan](#), which sets a goal of reducing greenhouse gas emissions by 40 percent below 1990 levels by 2030. To support that goal, the Plan calls for increased use of low-emission fuels in electricity generation, including wind and other renewables. The Plan states that at least 50 percent of New York's electricity should be generated from renewables by 2030. Even if this occurs,

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Texas (66)

water (49)

energy (28)

oil and gas (24)

fracking (23)

natural gas (23)

however, emissions could increase if the state's existing nuclear generating facilities are replaced by fossil fuel power plants.

New York has four nuclear facilities, one located on the east bank of the Hudson River, approximately 36 miles from Manhattan, and the other three further upstate. The four facilities currently generate nearly one-third of New York's electricity. According to the PSC, however, recent gas price declines:

“have impaired the financial viability of upstate nuclear plants, to the point where plant owners have announced the intention to close plants that are otherwise fully licensed and operational. The closure of upstate nuclear plants would have a tremendous negative impact on the State's ability to meet the greenhouse gas reduction goal in the State Energy Plan . . . [It] would undoubtedly result, based on current market conditions, in significantly increased emissions due to heavier utilization of existing fossil fuel plants or the construction of new gas plants.”

Seeking to prevent closure of the nuclear facilities, the PSC included in the CES a pricing mechanism, to compensate the facilities for their zero-emission attributes. The New York State Energy Research and Development Authority (NYSERD) will purchase Zero-Emissions Credits (ZECs) from qualifying nuclear facilities at an initial price of \$17.48 per megawatt hour (MWh). The price will be adjusted every two years, based on forecast electricity prices and the social cost of carbon. Over the first two year period from 2017 to 2019, with a price of \$17.48 per MWh, nuclear facilities will receive total payments of \$965 million. These payments will be recovered from electricity retailers, each of which must purchase a share of the ZECs from the NYSERD, equivalent to the portion of electricity load they serve. Retailers may pass the costs of these purchases onto ratepayers. The average ratepayer's bill is expected to increase by \$2 per month.

The PSC argues that the costs of the ZEC program are outweighed by the benefits including reduced greenhouse gas emissions, emphasizing that the state's four nuclear facilities avoid the emission of over 15 million tons of carbon dioxide annually. At least three of the facilities are likely to close unless supported through the ZEC program. This could result in higher emissions of carbon

climate change (23)

drought (18)

greenhouse gas emissions (16)

epa (13)

endangered species (12)

coal (12)

Clean Air Act (10)

groundwater (9)

methane (9)

dioxide as “there are insufficient zero-emission alternatives available to replace them any time soon.” To ensure achievement of the state’s emissions reductions goals, then, it will be important to ensure continued operation of the nuclear facilities at least in the short run.

Notwithstanding the above, the PSC clearly does not view nuclear generation as a long-term solution to climate change, describing it as “a bridge to a renewable future.” The implication is that nuclear generation will be phased out over time, as new renewable electricity systems come online. Existing nuclear facilities are, therefore, unlikely to be replaced when they reach end of life. Over the last 10 years, no new nuclear facilities have come online in the U.S., though five are under construction. Those plants will, when completed, add 5.7 gigawatts (GW) of nuclear capacity. To put that figure in perspective, 56.6 GW of wind energy capacity and 11.1 GW of solar energy capacity were added in the U.S. from 2008 to 2014, and a further 17.5 GW are under construction. (Further information on the capacity additions is available [here](#).)

Nuclear facilities deliver the same climate benefits as renewable systems, with both avoiding emissions of carbon dioxide and other greenhouse gases during electricity generation. Why, then, are renewables growing so much faster? The answer may lie in the fact that nuclear facilities are significantly more expensive and take much longer to construct than renewable energy systems.

Consider, for example, the [Vogtle nuclear facility](#) in Waynesboro in Georgia. Construction of the facility, which was to include four reactors, began in 1974, and was expected to cost \$660 million. By the late 1980s, only two reactors had been completed, at a cost of \$8 billion. [Two additional reactors](#) are currently being developed; after six years of construction, the project is 39 months behind schedule, and \$1 billion over budget.

This history of budget overruns has made the nuclear industry unpopular, particularly among electricity ratepayers, who are ultimately responsible for the costs of facility construction. Many ratepayers are also concerned about facility safety. The 2011 disaster at Japan’s Fukushima Daiichi reactor, triggered by an earthquake and subsequent tsunami that destroyed the reactor’s emergency cooling system, leading to three nuclear meltdowns

releasing radioactive material, was a disturbing reminder of the safety risks associated with nuclear generation. In the aftermath of the disaster, opposition to nuclear energy has grown. A recent [Gallup survey](#) found that 54 percent of American's now oppose nuclear energy, while just 44 percent support it. With such high public opposition, the nuclear industry's future looks bleak.

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