

North America

Alternative Energy | Nuclear Power

New York Seeks To Redesign Compensation To Keep Nuclear Plants Alive

Continued Nuclear Generation Deemed Crucial to Reduce Emissions

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Policy Brief

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Key Takeaways:

- The New York Public Service Commission (NY PSC) announced a plan to expedite financial support for continued operation of upstate nuclear power plants facing financial difficulty
- Continued operation of nuclear power plants will be critical to achieve the state's emissions reduction goal, and a new energy credit would place value on zero-emission nuclear power to incentivize financially-struggling plants
- Indian Point is excluded from the support program due to recurring leaks and its proximity to New York City

Entities Mentioned:

- Entergy Corporation
- Exelon
- Federal Energy Regulatory Commission
- Independent System Operator of New England
- New York Independent System Operator
- New York State Public Service Commission
- PJM Interconnection
- Rochester Gas & Electric

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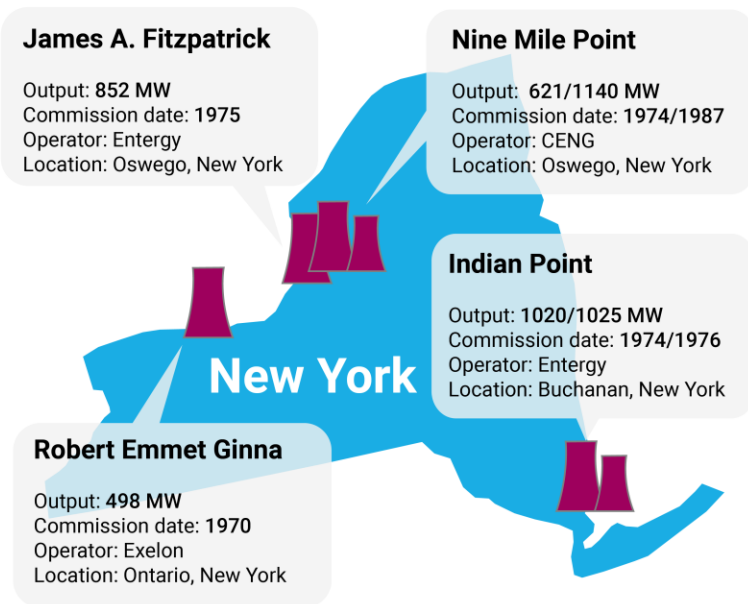
Insight for Industry – New Rescue Plan to Support Struggling Nuclear Plants Critical to Meet Emissions Reduction Goals

On February 23, 2016, the New York State Public Service Commission (NYPSC) announced a plan to enable expedited financial support for continued operation of the James A. FitzPatrick nuclear power facility and other upstate nuclear power plants facing financial difficulty. The NY PSC also approved a contract to keep the struggling Ginna nuclear power plant operating through March 2017. The NY PSC’s rescue plan is part of Governor Cuomo’s Clean Energy Standard (CES), which includes a provision to maintain currently operating upstate nuclear plants, which, if closed, would negatively impact the state’s ability to meet its clean energy and emissions reduction objectives. The CES itself is part of the 10-year, \$5 billion Clean Energy Fund announced by Governor Cuomo on January 21 to advance solar, wind, energy efficiency, and other clean energy industries to spur economic development and reduce emissions. It aims to procure 50 percent of the state’s energy from clean sources by 2030.

The Ginna, Nine Mile Point, and FitzPatrick facilities all qualify for CES support, while the state’s fourth nuclear facility, Indian Point Energy Center, is excluded from the proposal (Figure 1). Governor Cuomo has been pushing to close Indian Point, citing potential danger to the New York metropolitan area. Entergy Corporation, which owns both Indian Point and FitzPatrick facilities, is striving to obtain a 20-year license renewal for the facility, which—unlike FitzPatrick—has been profitable. Entergy remains firmly determined to close the FitzPatrick plant at the end of its fuel cycle in late 2016 to early 2017 due to challenging market conditions.

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Figure 1 – Nuclear Power Plants in New York State



Source: NRC

While a recent outage at Indian Point has strengthened the push to close the facility, the state's approach appears to be somewhat convoluted: while closing the commercially viable Indian Point, the state has dismissed the same reasons used to justify saving the unprofitable FitzPatrick, namely, fuel diversity and lack of emissions.

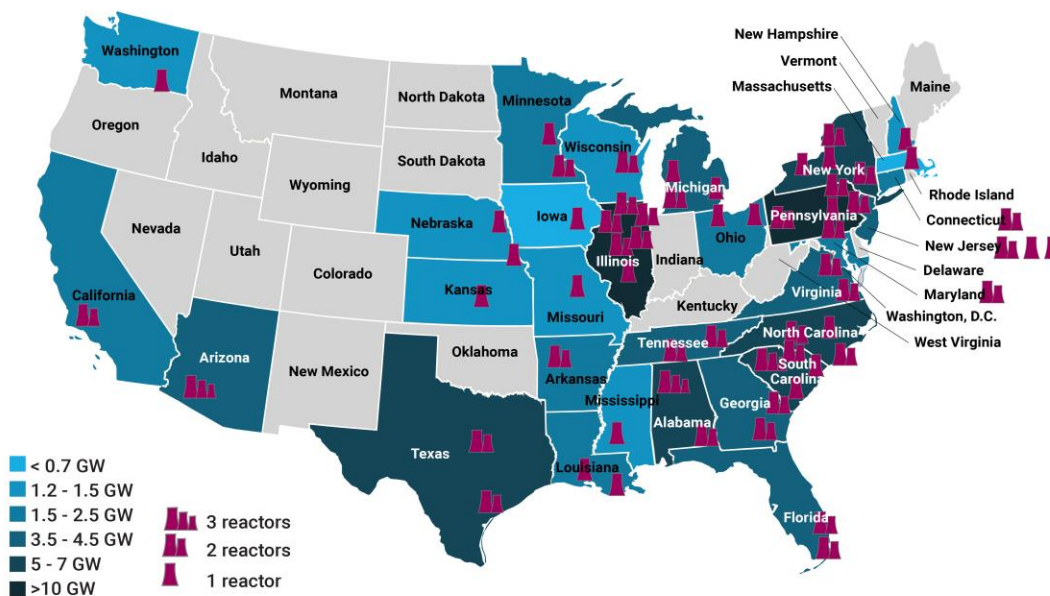
The NY PSC will also consider allowing electricity retailers to purchase zero energy credits from the upstate nuclear plants to boost their finances. According to NY PSC, the early closure of those plants would result in increased emissions from fossil fuel generators, reduced fuel diversity, and unstable electric prices, as well as economic distress in upstate communities. While the financial incentive program aims to preserve struggling plants, it could also set the stage for additional policy changes, since sustained operation of existing nuclear plants requires long-term financial viability facilitated by effective market design that recognizes the full range of benefits of nuclear power.

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Financial challenges posed by low natural gas prices and sustained wholesale electricity price declines have led to lower revenues for nuclear generators which rely on energy revenue margins to maintain their financial viability. Most of the recent closures are scheduled to occur before the license expiration of the reactors and are the result of economic constraints. Increasing levels of renewable energy and demand response have also reduced the value of nuclear and rendered nuclear plants uneconomic.

As of January, the U.S. had 61 commercially operating nuclear power plants with 99 nuclear reactors in 30 states (Figure 2).

Figure 2 – U.S. Nuclear Power Plants and Capacity



Source: EnerKnol Analysis of EIA Data

NY PSC Rescue Plan Targets Upstate Nuclear Plants Facing Financial Difficulties

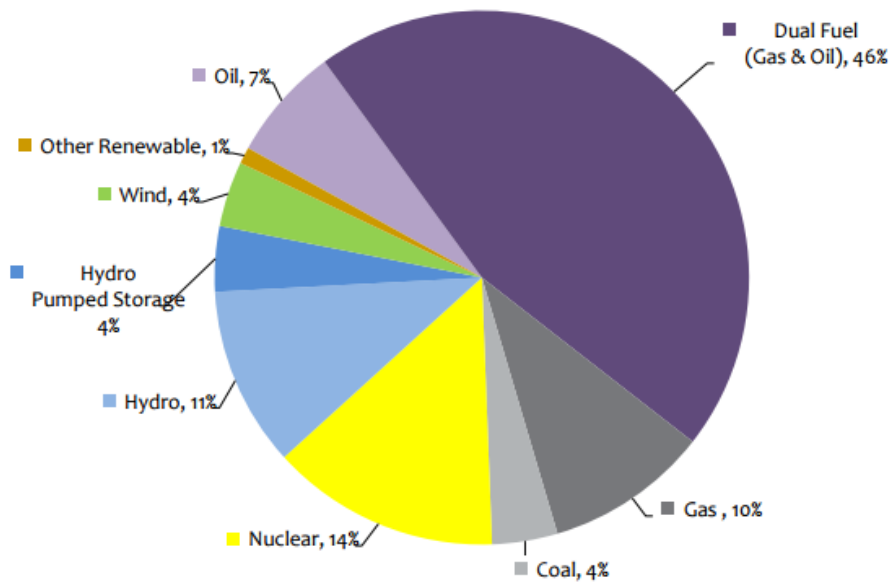
In November 2015, Entergy Corporation announced that it would retire its 882 MW FitzPatrick Nuclear Power Plant in New York at the end of its current fuel cycle, expected in late 2016 or early 2017. The company attributed its decision to significantly reduced revenues due to low natural gas prices, a flawed market design that improperly compensates the full benefits from nuclear generation, and high operational costs.

The NY PSC expects its expedited rescue plan to provide the necessary financial support to prepare the FitzPatrick nuclear power facility for refueling as early as June, long before the plant's scheduled closure. In announcing the proposal, the NY PSC drew on a report from the New York Independent System Operator (NYISO), which indicates potential reliability concerns in the absence of nuclear facilities in the state, saying that NYISO's finding underscored the need for a financial support mechanism to retain upstate nuclear power plants and prevent an unnecessary rise in emissions.

The four nuclear plants in New York account for 15 percent of the state's energy mix (Figure 3), with Ginna, Nine Mile Point, and FitzPatrick—all located on the shore of Lake Ontario—providing 60 percent of that share. All three plants qualify for CES support, while the fourth facility, Indian Point, located only 50 miles north of downtown Manhattan, is excluded from the proposal.

Entergy's decision to close FitzPatrick is attributed to significantly reduced revenues due to low natural gas prices, a flawed market design that improperly compensates the full benefits from nuclear generation, and high operational costs

Figure 3 - New York State 2015 Generating Capability by Fuel Source



Source: NYISO

In February 2016, the NY PSC also approved a Reliability Support Services Agreement (RSSA) between Rochester Gas & Electric (RG&E) and Ginna

Nuclear facility, which had announced its plans to retire two years ago, despite being licensed to operate until 2029. Pending the completion of necessary transmission upgrades, the agreement will run through March 31, 2017 and provide payments for Ginna's reliability support. Following a NYISO review of the reliability impacts, the NY PSC authorized RG&E, the investor-owned utility in Ginna's location, and Exelon Corporation, the owner of Ginna facility, to negotiate a RSSA to keep the plant in operation until at least 2018, in order to maintain system reliability in western New York. The RSSA provides the plant with out-of-market payments, while customers get the reliability benefits of the plant continuing to operate.

Clean Energy Standard Provides Distinct Support for Nuclear Plants, Includes Zero-Emission Credits

Under New York's CES, support for nuclear plants is distinct from the 50 percent renewable energy mandate and includes a process to prevent the premature retirement of upstate nuclear power plants during the state's clean energy transition. In defining tiers that distinguish between types of clean energy resources for load designation, a January whitepaper by NY PSC Staff proposed a third tier to ensure that emission-free power from eligible operating nuclear generating plants is properly valued. Tier 1 covers new incremental renewable generation and Tier 2 is divided into sub-tiers to cover certain existing renewable generation. The proposal expects the three tiers to provide clear connectivity among program elements and desired outcomes.

As part of CES, NY PSC has been crafting a new zero emissions credit (ZEC) that would, for the first time, place a monetary value on the zero-emission power generated from qualified nuclear plants, thus incentivizing financially-struggling plants. The CES is expected to be adopted in June following public comments and additional study. NY PSC expects the ZECs – if included in the mandate – to take effect after the completion of RSSA support payments to Ginna on March 31, 2017.

Indian Point Power Center Targeted for Closure, Excluded from Financial Support Program

A February 6 leakage of radioactive tritium-contaminated water from the Indian Point facility has intensified Governor Cuomo's push to close the plant. Three of forty monitoring wells recorded increases, with the radioactivity level at one well increasing by 65,000 percent from 12,300 picocuries per liter to more than 8,000,000 picocuries per liter. Entergy stated that the elevated tritium in the ground on site did not pose health or safety consequences and that releases remained more than a thousand times below federal permissible limits. However, Governor Cuomo said that the reported radioactivity levels were significantly higher than previous incidents at the plant, demonstrating its inability to continue operations in a safe manner. The Governor's stance that Indian Point poses unacceptable risk is grounded on concerns over potential risks to the nearby New York City metropolitan area.

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On February 6, Governor Cuomo directed New York's Department of Environmental Conservation and Department of Health to investigate the incident and employ available measures, including working with the Nuclear Regulatory Commission (NRC), to determine the cause, extent, and likely duration of the release, as well as potential environmental and health impacts. Senator Charles E. Schumer also sought an immediate NRC investigation to determine the extent of groundwater contamination and prevent the recurrence of such incidents. On February 17, six environmental and health groups led by Sierra Club called for the immediate suspension of operations while state and federal investigation on Indian Point's safety is underway.

In November 2015, the New York's Department of State (DOS) objected to license renewals for two Indian Point reactors citing conflicts with the state's coastal management regulations. On January 14, Entergy filed a lawsuit with U.S. District Court for the Northern District of New York claiming that the objection intruded NRC's exclusive regulatory authority over nuclear safety concerns. Entergy also noted that – in previous case on a similar issue – a New York appeals court held that Indian Point was exempt from a coastal management review under the Coastal Zone Management Act. Entergy petitioned the court to invalidate the objection on grounds that nuclear safety was pre-empted by federal law.

Entergy has underscored that the state's treatment of the three upstate nuclear plants - Ginna, Nine Mile, and FitzPatrick - comes in stark contrast to its treatment of Indian Point. According to the company, the only distinction between Indian Point and the upstate plants is DOS's perception of a greater nuclear safety risk at Indian Point, while the purported non-nuclear safety concern – environmental damage – is a pretext for nuclear safety concerns, which, under the Atomic Energy Act, falls under federal jurisdiction. Entergy noted that while the state dismissed Indian Point's benefits such as emissions-free operation and fuel diversity, it relied on those same benefits as reasons to provide financial support to keep upstate nuclear plants in operation. Entergy also said that the state's objection based on environmental effects, particularly, Indian Point's withdrawal of water from the Hudson River for cooling processes and associated impacts, was also in contrast to the state's approach to the upstate nuclear plants which also take cooling water from a local water body, namely, Lake Ontario.

Entergy applied to the NRC for 20-year license renewals for Indian Point 2 and Indian Point 3 in April 2007. The NRC allows plants to continue operating while license extensions are under review under the timely renewal provision until the NRC makes a final determination.

Economic and Policy Changes Key to Overcome Challenges from Market Inequities and High Operating Expenses

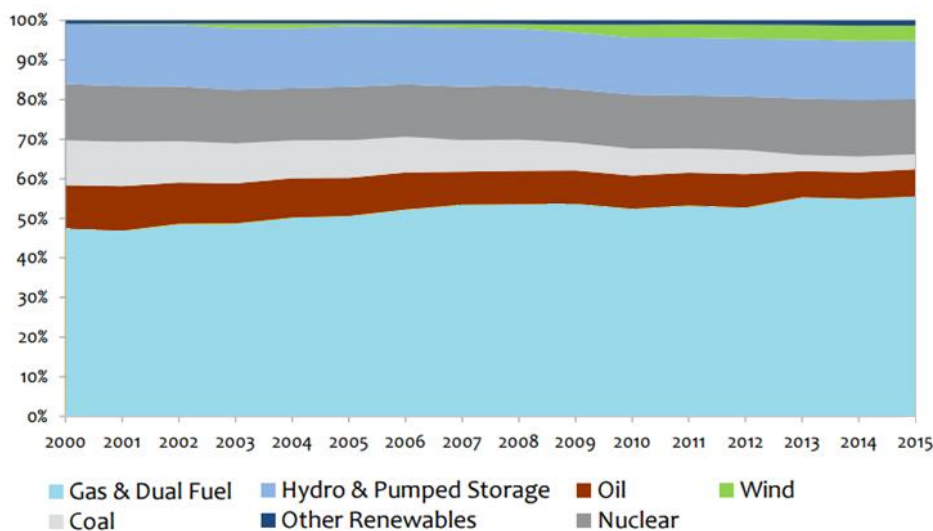
The economics of nuclear generation are being adversely impacted by competition from lower-cost gas-fired plants, increased safety requirements, and moderation in electricity demand. Falling revenues and rising costs have

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put nuclear plants in financial distress, forcing several operators to announce premature closure of their facilities. Since 2013, four nuclear plants have closed: Crystal River (Florida), Kewaunee (Wisconsin), San Onofre (California), and Vermont Yankee (Vermont). In October 2015, Entergy announced its plan to retire the 680 MW Pilgrim Nuclear Power Station in Massachusetts, citing reduced revenues and increased operational costs. Entergy said that despite investing hundreds of millions to improve the plant’s safety, reliability, and security, increased operational costs and enhanced NRC oversight had made continued operations unfeasible.

New York’s share of nuclear generation has remained relatively constant at approximately 15 percent since 2000, in contrast to other fuels that have undergone noticeable changes (Figure 4). The share of generating capability from dual fuel (gas and oil) facilities increased from 47 to 56 percent from 2000-2015, while wind power, virtually non-existent in 2000, constituted 4 percent of the state’s generation portfolio in 2015. Potential nuclear retirements would affect the share of nuclear generation.

Figure 4 - New York State Fuel Mix Trends, 2000-2015



Source: NYISO

Historically, state and federal emissions reduction policies have not been designed to incentivize nuclear plants. For example, wind generators benefit from the federal production tax credit and priority grid access, thereby creating market inequities. New York’s effort to create a financial incentive to retain nuclear plants underscores that achieving the state’s emissions reduction goal depends on continued operation of nuclear power plants, as replacing lost nuclear generation with fossil fuel generation would significantly increase emissions. Under New York’s innovative CES program, ZECs are not eligible to demonstrate compliance with the renewable energy mandate, but are intended to serve as a bridge to the state’s renewable energy goals. However, renewable generation may not be able to increase at a pace that is

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fast enough to offset lost nuclear generation. In addition, ZECs cannot produce revenues on an immediate basis, uncertainties exist.

Sustained operation of existing nuclear plants requires long-term financial viability. The industry has been vocal about the need for an effective market design that recognizes the benefits of nuclear power and considers market resiliency factors including short-term prices and long-term price stability. Industry has also emphasized the need to reward the favorable attributes of nuclear plants, such as the ability to provide reliable and dispatchable capacity, carbon-free electricity, base load operation, long-term and stable costs, and system reliability. For example, there are concerns that the Federal Energy Regulatory Commission (FERC) Order No. 745 – which allows demand response resources that function as alternatives to generation resources in wholesale energy markets to receive the same compensation as generation resources – would artificially suppress prices paid to conventional generators, adding to the challenges that nuclear facilities face in the marketplace. The Nuclear Energy Institute (NEI) fears that Order 745 could lead to premature closure of some nuclear plants and also affect supply diversity, consumer costs, grid reliability, and emissions reduction efforts.

The Independent System Operator of New England and PJM have taken steps to make changes in their market designs to provide the pricing signals needed to retain power plants and compensate resources that meet performance obligations. After PJM's 2018/2019 capacity auction, Exelon, which has also been considering nuclear retirements, stated that PJM market reforms are in the right direction to recognize nuclear energy's high reliability. Such changes would provide adequate compensation to merchant nuclear plants for the benefits they provide, enhancing long-term financial viability. At the same time, financial incentives could serve as an economic lifeline for financially-stressed plants. For example, Ginna could utilize ZECs to continue operations beyond March 2017 under New York's CES program to keep upstate nuclear plants operating until large-scale renewable energy facilities are deployed.

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