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## Trust the Process?: The Implementation of New Jersey's Zero Emission Certificate Program

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# Trust the Process?: The Implementation of New Jersey’s Zero Emission Certificate Program

Peter Strom\*

## Abstract

*New Jersey is acting to position itself as a leader in the transition to clean energy in the United States. New Jersey’s current asset mix requires nuclear power to be part of this plan, at least in the near term. The nuclear industry is struggling, however, which has prompted the legislatures in several other states to institute programs to pay companies for the beneficial attributes of nuclear power generation that may not be valued by the market. New Jersey passed legislation requiring the New Jersey Board of Public Utilities (BPU) to implement a program that may award Zero Emission Certificate (ZEC) payments to nuclear power generators. These payments will be indirectly funded by New Jersey’s ratepayers. When implementing the program, the BPU solicited public comment and granted some interested parties access to the program applicants’ confidential financial data. The regulatory approval process prescribed by the legislation did little to engender public confidence that nuclear plant applicants were “at risk of closure” and therefore statutorily entitled to ZEC payments. The process raises larger questions about the role of government regulation in market environments, and whether citizens should look to government to provide certainty in process, or certainty of outcome.*

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## I. Introduction

Nuclear power plant closure is permanent. “They all close . . . they all do. That’s how they’re designed,” says Jennifer Stromsten of the Institute for Nuclear Host Communities.<sup>1</sup> A plant’s inevitable closure, however, does not make the effects of closure any less significant. In 2014, the Vermont Yankee nuclear power plant closed in Vernon, Vermont.<sup>2</sup> The closure was a business decision, as plant owner and operator Entergy Corporation expected the closure to boost its cash flow by over \$150 million.<sup>3</sup> Entergy’s chairman called the decision “agonizing,”<sup>4</sup> and it was. The region experienced a \$100 million drop in economic activity.<sup>5</sup> The closure resulted in \$358 million in lost salaries and tax revenue as well as a twenty percent increase in the municipal and property tax rates.<sup>6</sup> Imported natural gas replaced the plant’s share of power generation within the state, and the increase in carbon emissions was the “functional equivalent of putting [one] million cars on the road.”<sup>7</sup> Once a nuclear power plant operator decides to close and decommission

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<sup>1</sup> Alan Greenblatt, *This is What Happens When a Nuclear Plant Shuts Down*, GOVERNING (May 30, 2017, 3:00 AM) <https://www.governing.com/topics/transportation-infrastructure/gov-nuclear-plant-closure.html>.

<sup>2</sup> *Establishes Nuclear Diversity Certificate Program: Hearing on S.B. 3560 Before a Joint Committee*, 2017 Leg., 217th Sess. 96 (NJ 2017) [hereinafter “December 20<sup>th</sup> Hearing”] (statement of Maria Korsnick), transcript available at <https://www.njleg.state.nj.us/legislativepub/pubhear/senatu12042017.pdf>.

<sup>3</sup> Brian Handwerk, *Economics Force Vermont Yankee Nuclear Power Plant to Close*, NATIONAL GEOGRAPHIC (Aug. 27, 2013) <https://www.nationalgeographic.com/environment/great-energy-challenge/2013/economics-force-vermont-yankee-nuclear-power-plant-to-close/>.

<sup>4</sup> *Id.*

<sup>5</sup> Greenblatt, *supra* note 1.

<sup>6</sup> December 20th Hearing, *supra* note 2 at 124–25 (statement of Joshua Unruh). A 2014 study estimated that the “overall economic activity in the region associated with Vermont Yankee in its last year of operation” was almost \$500 million. UMASS DONAHUE INSTITUTE, ECONOMIC IMPACTS OF VERMONT YANKEE CLOSURE 9 (Dec. 2014) [http://www.donahue.umassp.edu/documents/UMDI\\_Economic\\_Impacts\\_VY\\_Closure\\_Dec2014.pdf](http://www.donahue.umassp.edu/documents/UMDI_Economic_Impacts_VY_Closure_Dec2014.pdf).

<sup>7</sup> December 20th Hearing, *supra* note 2 at 90 (statement of Sen. Judd A. Gregg).

a plant, the decision is profoundly certain and irreversible. This stands in stark contrast to the cloud of uncertainty hovering over the nuclear power industry as it exists today.

The current state of nuclear power generation technology is a far cry from its introduction as the technological advancement that was going to make electricity “too cheap to meter.”<sup>8</sup> Among other things, plant construction costs have decimated this promise of ubiquitous commercial nuclear power generation. The actual construction costs for seventy-five of the ninety-eight currently active nuclear power generating units in the U.S. exceeded the initially estimated costs by over 200 percent.<sup>9</sup> Cost variability, and consequently financing uncertainty, has threatened the overall economic attractiveness of nuclear development.<sup>10</sup> Labeled as “the largest managerial disaster in business history,”<sup>11</sup> uncertainty is deeply engrained into the industry’s core. Engrained uncertainty led to a virtual moratorium on nuclear power plant construction began in the 1980s,<sup>12</sup> during which no new nuclear plant construction projects were initiated between 1977 and 2009.<sup>13</sup>

At the turn of the century, expansion projects at existing nuclear plants in South Carolina and Georgia were supposed to ignite a “nuclear renaissance.”<sup>14</sup> Memories of failed construction projects and exorbitant cost overruns gave way to a new-found urgency to reduce greenhouse gas emissions that contribute to climate change.<sup>15</sup> Although the nuclear lifecycle is not fully zero-

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<sup>8</sup> *Cheap Dreams, Expensive Realities*, UNION OF CONCERNED SCIENTISTS, <https://www.ucsusa.org/nuclear-power/cost-nuclear-power#.W-mhLJNKg2x> (last visited Nov. 11, 2018).

<sup>9</sup> SYNAPSE ENERGY ECONOMICS, INC., NUCLEAR POWER PLANT CONSTRUCTION COSTS 7 (July 2008).

<sup>10</sup> *Id.* at 5.

<sup>11</sup> *Cheap Dreams, Expensive Realities*, *supra* note **Error! Bookmark not defined.**

<sup>12</sup> DANIEL YERGIN, *THE QUEST: ENERGY, SECURITY, AND REMAKING OF THE MODERN WORLD* 407 (2011).

<sup>13</sup> *Nuclear Power in the USA*, WORLD NUCLEAR ASS’N, <http://www.world-nuclear.org/information-library/country-profiles/countries-t-z/usa-nuclear-power.aspx> (updated April 2019). Excavation of the area where the new Plant Vogtle units were planned began in 2009. *Plant Vogtle 3 and 4*, SOUTHERN NUCLEAR, <https://www.southerncompany.com/innovation/nuclear-energy/plant-vogtle-3-and-4.html> (last visited April 22, 2019).

<sup>14</sup> Molly Samuel, *How the Dream of America’s ‘Nuclear Renaissance’ Fizzled*, NPR (Aug. 6, 2017, 7:19 AM) <https://www.npr.org/2017/08/06/541582729/how-the-dream-of-americas-nuclear-renaissance-failed-to-materialize>.

<sup>15</sup> *Id.*

carbon, the generation of nuclear power does not emit greenhouse gasses.<sup>16</sup> Given the significant number of operational nuclear power plants in the U.S., nuclear power figured to be a key climate change mitigation technology in the country's cleaner energy future.

Unsurprisingly, the expansion projects initiated over a decade ago remain incomplete with cost overruns in the tens of billions of dollars.<sup>17</sup> Outside forces and continued project mismanagement make investment into new nuclear power generation projects increasingly unlikely.<sup>18</sup> Compounding the issue, the industry must still deal with problems plaguing owners and operators in the continued operation of existing generation assets. Plants like Vermont Yankee have been forced into early retirement due to an inability to remain profitable within the markets in which they operate. If all announced plant closures go forward, the total number of operational units will decline from ninety-eight to eighty-nine.<sup>19</sup> Nuclear plant economic performance is hampered by “cheap natural gas, diminished demand for electricity, falling costs for renewable energy, rising operating costs, and safety and performance problems.”<sup>20</sup>

Despite the industry's struggles, nuclear power cannot be dismissed as a potential part of a long-term climate solution.<sup>21</sup> Timelines for decarbonization of the power sector do not take into account early plant retirements, and scientists predict that that decarbonization must be achieved

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<sup>16</sup> *Id.*

<sup>17</sup> The expansion project in Georgia was initially estimated to cost \$14.3 billion. In 2018, cost-to-completion estimates exceeded \$27 billion. Sonal Patel, *How the Vogtle Nuclear Expansion's Costs Escalated*, POWER (Sept. 24, 2018), <https://www.powermag.com/how-the-vogtle-nuclear-expansions-costs-escalated/?pagenum=3>.

<sup>18</sup> M. Granger Morgan et. al., *US Nuclear Power: The Vanishing Low-Carbon Wedge*, 115 PROCEEDINGS OF THE NAT'L ACAD. OF SCI. OF THE U.S. 7184 (July 10, 2018), <https://www.pnas.org/content/pnas/115/28/7184.full.pdf>.

<sup>19</sup> Michael Shellenberger, *Nuclear Plant Closures Show Why, When it Comes to Energy, Small is Expensive*, FORBES (Aug. 1, 2018, 11:52 AM), <https://www.forbes.com/sites/michaelsellenberger/2018/08/01/nuclear-plant-closures-show-why-when-it-comes-to-energy-small-is-expensive/#58816e8571a2>.

<sup>20</sup> UNION OF CONCERNED SCIENTISTS, THE NUCLEAR POWER DILEMMA: DECLINING PROFITS, PLANT CLOSURES, AND THE THREAT OF RISING CARBON EMISSIONS, *executive summary* (2018), <https://www.ucsusa.org/sites/default/files/attach/2018/11/Nuclear-Power-Dilemma-executive-summary.pdf>

<sup>21</sup> UNION OF CONCERNED SCIENTISTS, THE NUCLEAR POWER DILEMMA: DECLINING PROFITS, PLANT CLOSURES, AND THE THREAT OF RISING CARBON EMISSIONS 11 (2018), <https://www.ucsusa.org/sites/default/files/attach/2018/11/Nuclear-Power-Dilemma-full-report.pdf>.

by 2050 to avoid the worst consequences of climate change.<sup>22</sup> Indeed, reports on climate change continue to increase in urgency,<sup>23</sup> and many states have responded to these concerns by setting aggressive clean energy goals to eliminate the use of carbon-emitting fuels.<sup>24</sup> To help states meet their clean energy goals, state legislatures have acted to prop up struggling nuclear power plants. Bills have been introduced, passed, challenged and upheld.<sup>25</sup> In New York, the legislature created a zero-emission credit (ZEC) program, requiring state utilities to purchase ZECs<sup>26</sup> generated by in-state nuclear power plants.<sup>27</sup> Illinois modeled its program around New York's program.<sup>28</sup> The constitutionality of these programs is beyond the scope of this article, but it suffices to say that

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<sup>22</sup> *Id.*

<sup>23</sup> In analyzing the most recent UN report on climate change, Caroline Haskins of Vice painted a bleak picture: “If we fail to meet [carbon emission reduction] goals and the earth warms by 2 degrees Celsius, according to the report, hundreds of millions of lives are at stake. Twice as many people would have unreliable access to water as do today. Food shortages in Saharan and Sub-Saharan Africa, the Mediterranean, central Europe, and the South American Amazon will intensify. The range of heat-driven diseases like malaria will spread. Maize, rice, wheat will become about half as productive, and rice and wheat will become less nutritious. But 2 degrees of warming isn't even a worst-case scenario. If we keep releasing emissions at our current rate, the earth will warm by 4.8 degrees compared to pre-industrial levels by 2100.” Caroline Haskins, *Devastating UN Report: CO2 Emissions Must Go to Zero by 2050 to Avoid Worst Effects of Climate Change*, VICE (Oct. 8, 2018, 9:26 AM), [https://motherboard.vice.com/en\\_us/article/43eb4b/ipcc-15-degree-climate-change-report](https://motherboard.vice.com/en_us/article/43eb4b/ipcc-15-degree-climate-change-report).

<sup>24</sup> New Jersey is the most recently minted member of the “50/30” club, calling for a fifty percent reduction in carbon emissions by 2030. This goal, part of the state's Renewables Portfolio Standard (RPS) puts it in the same group as New York and California. The only other states that have more ambitious RPS goals are Vermont and Hawaii. Christian Roselund, *New Jersey Joins The 50% By 2030 Renewable Energy Club*, PV MAGAZINE (May 23, 2018), <https://pv-magazine-usa.com/2018/05/23/new-jersey-joins-the-50-by-2030-renewable-energy-club/>.

<sup>25</sup> *Coal. for Competitive Elec. v. Zibelman*, 906 F.3d 41 (2nd Cir. 2018) (holding that the “ZEC program's incidental effect on wholesale electricity rates insufficient to state a claim for field preemption”, the “program was not conflict preempted by [Federal Power Act]” and “plaintiffs lacked standing to assert claim the ZEC program violated dormant Commerce Clause”); *Elec. Power Supply Ass'n v. Star*, 904 F.3d 518 (7th Cir. 2018) (holding that the program was “not preempted by the [Federal Power Act]” and that it “did not violate dormant Commerce Clause”).

<sup>26</sup> ZECs are “payments that electricity generators receive to compensate them for the valuable attribute of not emitting greenhouse gases in the production of electricity.” NUCLEAR ENERGY INST., ZERO-EMISSION CREDITS 3 <https://www.nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/zero-emission-credits-201804.pdf>.

<sup>27</sup> *New York*, ST. POWER PROJECT <https://statepowerproject.org/new-york/> (last visited Nov. 4, 2018).

<sup>28</sup> *Illinois*, ST. POWER PROJECT <https://statepowerproject.org/illinois/> (last visited Nov. 4, 2018).

each program was upheld in the Court of Appeals.<sup>29</sup> The Supreme Court has subsequently denied petitions for certiorari.<sup>30</sup>

New Jersey enacted its own ZEC program (with the “C” standing for “certificate”, not “credit”), signed into law by Governor Phil Murphy in May 2018.<sup>31</sup> Based on the rulings of the Second and Seventh Circuits, it is unlikely that New Jersey’s program will be challenged on constitutional grounds. The program’s implementation, however, presents interesting questions about how state governments should craft policy to meet ambitious clean energy goals without creating dysfunction in the energy markets or unfairly burdening ratepayers with large increases in energy bills. Regulatory policy like the ZEC program is viewed as “not simply a palliative for occasional markets weaknesses, but rather as an integral part of a broader social system that encompasses economic institutions and relationships.”<sup>32</sup> Policy is ultimately judged based on how well it achieves its objectives.<sup>33</sup> The question that must be asked is whether the instituted regulatory process is one that is intended to achieve the “best” outcome, regardless of whether it meets the pre-determined policy objective; or if the policy objective – in this case, reduced carbon emissions – is the pre-determined outcome and the instituted regulatory process permits arriving at that pre-determined outcome at any cost.

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<sup>29</sup> Keith Goldberg, *7th Circ. Upholds Ill. Nuke Subsidy Program*, LAW360 (Sept. 13, 2018, 4:49 PM), <https://www.law360.com/projectfinance/articles/1082783/7th-circ-upholds-ill-nuke-subsidy-program>; Keith Goldberg, *2nd Circ. Upholds NY Nuke Plant Subsidies*, LAW360 (Sept. 27, 2018, 11:08 AM), <https://www.law360.com/articles/1086987/2nd-circ-upholds-ny-nuke-plant-subsidies>.

<sup>30</sup> Rich Heidorn Jr., *Supreme Court Won't Hear ZEC Challenges* (April 15, 2019), <https://www.rtoinsider.com/supreme-court-wont-hear-zec-challenges-114578/>.

<sup>31</sup> Peter Maloney, *New Jersey Gov. Murphy Signs Bills Creating Zero Emission Credits for Nuclear*, UTILITYDIVE (May 24, 2018) <https://www.utilitydive.com/news/new-jersey-gov-murphy-signs-bills-creating-zero-emission-credits-for-nucle/524238/>.

<sup>32</sup> GOVERNMENT AND MARKETS: TOWARD A NEW THEORY OF REGULATION 3 (Edward Balleisen & David A. Moss eds., 2009)

<sup>33</sup> ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, REDUCING THE RISK OF POLICY FAILURE: CHALLENGES FOR REGULATORY COMPLIANCE 7 (2000), <https://www.oecd.org/gov/regulatory-policy/46466287.pdf>.

Part II of this Comment will lay out a brief landscape of energy generation by nuclear power plants. Encompassed within this discussion is the development of nuclear power specific to the State of New Jersey, and an exploration of why state legislatures are working so hard to keep existing nuclear power generation assets competitive within the market. This will include a discussion on how the market works and how the ZEC program fits into the bigger picture of New Jersey's clean energy initiatives. Part III will then dive into the legislation, discussing the legislative history, the statute, and the critical regulatory role of the New Jersey Board of Public Utilities (BPU)'s role in implementing the program. Part IV will analyze the competing agendas of key regulatory players and use a similar saga that has played in out the State of Connecticut to show why legislative goals may be more determinative than the decision-making process that the legislatures implement.

## II. Nuclear Energy's Historical and Modern Landscape

Nuclear power accounts for about twenty percent of U.S. electric generation.<sup>34</sup> Despite a virtual moratorium on nuclear power plant construction beginning in the 1980s<sup>35</sup>, the nuclear power industry's share of the energy market remains relatively unchanged due to dramatic operational improvements.<sup>36</sup> Some estimates, however, predict that the nuclear industry's market share will fall to eleven percent by 2050 as plant owners begin to act on plans to decommission units that are no longer profitable.<sup>37</sup> A nine percent loss in overall U.S. electric generating capacity is significant and may lead to a sharp increase in carbon emissions if gas-fired plants replace the

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<sup>34</sup> *U.S. Nuclear Capacity and Generation Expected to Decline as Existing Generators Retire*, U.S. ENERGY INFO. ADMIN.: TODAY IN ENERGY (May 12, 2017) <https://www.eia.gov/todayinenergy/detail.php?id=31192>.

<sup>35</sup> DANIEL YERGIN, *THE QUEST: ENERGY, SECURITY, AND REMAKING OF THE MODERN WORLD* 407 (2011).

<sup>36</sup> *Id.* Yergin views the improvement in nuclear power plant operating efficiency as so significant that "it can almost be seen as a new source of electric power itself."

<sup>37</sup> *U.S. Nuclear Capacity and Generation Expected to Decline as Existing Generators Retire*, U.S. ENERGY INFO. ADMIN. (May 12, 2017), <https://www.eia.gov/todayinenergy/detail.php?id=31192>.



loss. This loss is exacerbated by the inability to bring a decommissioned nuclear power plant back online.<sup>38</sup> Pursuant to Nuclear Regulatory Commission (NRC) regulations, a decommissioned plant is permanently out of use.<sup>39</sup>

Although these concerns apply to nuclear power generators throughout the nation, the U.S. energy industry is regionally dynamic. Supply, demand, resource availability, geography and demographics all play a role in determining each state's power generation profile. Reviewing the development of nuclear energy within the state is therefore required before analyzing legislation benefitting nuclear plants at risk of closure.

#### A. Nuclear Energy in New Jersey

In New Jersey, there are currently three active nuclear reactors, with all three units located at the same location: the Salem-Hope Creek Generating Station.<sup>40</sup> The station accounts for 35.8% of the state's utility-scale net electricity generation,<sup>41</sup> which is just shy of double the national

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<sup>38</sup> *Nuclear Decommissioning and Legal Risk*, LATHAM & WATKINS (Nov. 14, 2017), <https://www.lw.com/thoughtLeadership/nuclear-decommissioning-legal-risk> (“The NRC further instructs that licensees shall not perform any major decommissioning activities (defined as “any activity that results in permanent removal of major radioactive components, permanently modifies the structure of the containment, or results in dismantling components for shipment”) until 90 days after the NRC has received a licensee’s “post-shutdown decommissioning activities report” and until certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel have been submitted.”).

<sup>39</sup> *Id.*

<sup>40</sup> Salem is a dual unit reactor that is 57% owned by PSEG Nuclear LLC (a subsidiary of PSEG) and 43% by Exelon Corporation. Hope Creek is 100% owned by PSEG, and all three units are operated by PSEG Nuclear. *PSEG Nuclear LLC*, PSEG (last visited Jan. 6, 2018), <https://corporate.pseg.com/aboutpseg/companyinformation/thepsegfamilyofcompanies/psegnuclearllc>. Exelon Corporation owns six utilities that deliver electricity and natural gas to approximately ten million customers in Delaware, the District of Columbia, Illinois, Maryland, New Jersey and Pennsylvania through its subsidiaries. Exelon is also one of the largest competitive U.S. power generators, with more than 32,700 megawatts of nuclear, gas, wind, solar and hydroelectric generating capacity. *About Exelon*, EXELON, <http://www.exeloncorp.com/company/about-exelon>. (last visited Nov. 11, 2018).

<sup>41</sup> “Net generation” refers to “the amount of gross generation less the electrical energy consumed at the generating station(s) for station service or auxiliaries.” *Electric Power Monthly with Data for October 2018*, U.S. ENERGY INFO. ADMIN., (December 2018) [https://www.eia.gov/electricity/monthly/current\\_month/epm.pdf](https://www.eia.gov/electricity/monthly/current_month/epm.pdf). “Utility-scale” owns a more loose definition and is most commonly associated with solar and other renewables. Generally, utility-scale facilities have a power-purchase agreement with a utility company, guaranteeing a market for its energy for a fixed period of time. Patrick Donnelly-Shores, *What Does ‘Utility-Scale Solar’ Really Mean?*, GREEN TECH MEDIA (July 30, 2013), <https://www.greentechmedia.com/articles/read/what-does-utility-scale-solar-really-mean#gs.gCADy86g>.

average for utility-scale net generation.<sup>42</sup> Generation has fallen from 2,533,000 megawatt-hours in October 2017 to 1,946,000 megawatt-hours in October 2018. This twenty-three percent drop in net generation is due to the closure of Oyster Creek Nuclear Generating Station (“Oyster Creek”), located in Lacey, New Jersey, on September 17, 2018.<sup>43</sup>

At the time of its closure, Oyster Creek was the oldest operating nuclear power plant in the country.<sup>44</sup> Exelon Corporation was the owner and operator of Oyster Creek<sup>45</sup>, which was a success by nuclear industry standards. Despite its early retirement, it should be considered a success because of the unfortunately low standards the industry has set with its track record of nuclear plant construction.<sup>46</sup> The abandonment of nuclear reactors already under construction has been a surprisingly frequent occurrence in the history of the U.S. nuclear industry. Plans to construct over one hundred separate reactors have been cancelled and thirty-six of these reactors were already under construction.<sup>47</sup> The amount of money lost on these investments is staggering<sup>48</sup> but the outstanding funding required to complete these capital-intensive projects is very often the

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<sup>42</sup> U.S. ENERGY INFO. ADMIN.: NEW JERSEY ST. ENERGY PROFILE (last updated Oct. 18, 2018), <https://www.eia.gov/state/print.php?sid=NJ>. The U.S. average for state utility-scale net generation of nuclear energy is 18.1%.

<sup>43</sup> Darrell Proctor, *Oldest U.S. Nuclear Plant Shuts Down*, POWER (Sept. 17, 2018), <https://www.powermag.com/oldest-u-s-nuclear-plant-shuts-down/>.

<sup>44</sup> *Id.*

<sup>45</sup> Exelon has reached an agreement to sell Oyster Creek to Holtec International, a company with extensive experience employing spent nuclear fuel management technology to carry out nuclear power plant decommissioning. The transaction will clear once the Nuclear Regulatory Commission approves it.

*PRESS RELEASE: Holtec International to Purchase Oyster Creek Generating Station, Decommission Nuclear Plant within Eight Years*, MARKETWATCH (July 31, 2018, 8:37 AM), <https://www.marketwatch.com/press-release/holtec-international-to-purchase-oyster-creek-generating-station-decommission-nuclear-plant-within-eight-years-2018-07-31>.

<sup>46</sup> See SYNAPSE ENERGY ECONOMICS, INC., *supra* note 9.

<sup>47</sup> Sonal Patel, *The Big Picture: Abandoned Nuclear*, POWER (Feb. 1, 2018) <https://www.powermag.com/the-big-picture-abandoned-nuclear/>.

<sup>48</sup> The nuclear expansion project in South Carolina was cancelled after nine billion dollars of investment. Andrew Brown, *V.C. Summer Nuclear Cancellation Costs SC Residents Billions*, (Dec. 22, 2018), [https://www.postandcourier.com/news/v-c-summer-nuclear-cancellation-costs-sc-residents-billions/article\\_5e47be44-f711-11e8-b849-7fd4061473e5.html](https://www.postandcourier.com/news/v-c-summer-nuclear-cancellation-costs-sc-residents-billions/article_5e47be44-f711-11e8-b849-7fd4061473e5.html).

reason for their abandonment. New Jersey has had two nuclear power plant projects derailed: the world's first floating nuclear reactor<sup>49</sup> and the Forked River Nuclear Power Plant.

The failure to bring the Forked River Nuclear Power Plant to fruition provides a good example of how a confluence of outside forces can lead to project cancellation. In 1969, Jersey Central Power and Light<sup>50</sup> ("Jersey Central") proposed constructing the plant in Forked River, New Jersey.<sup>51</sup> The company halted plant construction in 1974,<sup>52</sup> but prevailed in a legal battle to resume construction in 1976.<sup>53</sup> This victory would prove to be short-lived due to the events that unfolded as the construction timeline dragged on.

In early March 1979, a worker was killed in a construction accident at the Forked River site.<sup>54</sup> Later that month, an incident of monumental proportions occurred at one of Jersey Central's *other* nuclear power plants: Three Mile Island. Jersey Central was part owner of the active plant's

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<sup>49</sup> PSE&G had grand plans to build the world's first floating reactor off the coast of Atlantic City. PSE&G engineer Richard Eckert hatched the idea which proved to be a catalyst for corporate and government investment into the scientific viability of the project during the early 1970s. It was unexpectedly not safety or environmental concerns that caused PSE&G to nix the idea. The 1973 oil embargo raised the price of electricity which resulted in a corresponding long-term decrease in demand. With diminished demand, the incentive to invest in new electric generation was gone. Matt Reimann, *In the 1980s, A Power Company Almost Built a Floating Nuclear Power Plant Off New Jersey*, MEDIUM: TIMELINE (April 13, 2017), <https://timeline.com/floating-nuclear-power-plants-c808bfe707aa>; <sup>49</sup> *Oil Embargo, 1973-74*, OFFICE OF THE HISTORIAN, <https://history.state.gov/milestones/1969-1976/oil-embargo> (last visited January 11, 2019).

<sup>50</sup> Jersey Central Power and Light was a subsidiary of General Public Utilities Corporation. In 1996, General Public Utilities reorganized as a holding company and was renamed GPU, Inc. In 2001, FirstEnergy Corporation merged with GPU Inc. In November 2016, the company made the decision to exit the competitive power business and become a fully regulated company. *FirstEnergy*, WIKIPEDIA, <https://en.wikipedia.org/wiki/FirstEnergy> (last visited Nov. 11, 2018).

<sup>51</sup> *Forked River Nuclear Power Plant*, WIKIPEDIA, [https://en.wikipedia.org/wiki/Forked\\_River\\_Nuclear\\_Power\\_Plant](https://en.wikipedia.org/wiki/Forked_River_Nuclear_Power_Plant) (last visited January 11, 2019).

<sup>52</sup> Walter H. Waggoner, *Utility Allowed to Continue Nuclear Project*, THE NEW YORK TIMES, (Dec. 15, 1976), <https://www.nytimes.com/1976/12/15/archives/trenton-topics-utility-allowed-to-continue-nuclear-project.html?sq=%2522Utility+Allowed+to+Continue%2522&scp=1&st=p>.

<sup>53</sup> *Id.*

<sup>54</sup> *Worker is Killed at Atomic Plant Site*, N.Y. TIMES, Mar. 13, 1979, <https://www.nytimes.com/1979/03/13/archives/the-region-worker-is-killed-at-atomicplant-site-princeton-shuts-pub.html?sq=%2522Worker+Is+Killed+At+Atomic-Plant%2522&scp=1&st=p>.

first and second units located in Middleton, Pennsylvania.<sup>55</sup> Three Mile Island’s second reactor caused what has been labeled “the worst accident in the history of commercial nuclear power in the United States.”<sup>56</sup> A combination of “personnel error, design deficiencies, and component failures” caused the nuclear reactor’s core to overheat and melt down.<sup>57</sup> The political and regulatory fallout from Three Mile Island was tremendous, and is objectively responsible for permanent changes to plant safety regulation.<sup>58</sup> Jersey Central experienced serious financial difficulties in the wake of the accident. The company was forced to shut down operations at Forked River, and as of November 7, 1980, five percent of the plant had been completed with a price tag of \$394 million.<sup>59</sup> Adjusted for inflation, the same failed effort would have cost Jersey Central over \$1 billion today.<sup>60</sup>

The virtual impossibility of completing a nuclear power plant construction project on time or on budget haunts the industry. The average total construction cost overrun for seventy-five nuclear units initiated between 1966 and 1977 was more than triple the estimated cost.<sup>61</sup> New Jersey’s currently active nuclear power plants are no exception. Construction for Salem’s first unit began in 1968 and the unit did not come online until 1976.<sup>62</sup> As of April 1974, the cost of building

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<sup>55</sup> *A Corporate History of Three Mile Island*, THREE MILE ISLAND ALERT, <http://www.tmia.com/corp.historyTMI> (last visited Jan. 11, 2019).

<sup>56</sup> J. SAMUEL WALKER, *THREE MILE ISLAND: A NUCLEAR CRISIS IN HISTORICAL PERSPECTIVE* (2004).

<sup>57</sup> *Backgrounder on the Three Mile Island Accident*, U.S. NUCLEAR REG. COMMISSION, <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html> (last visited January 11, 2019).

<sup>58</sup> *Id.*

<sup>59</sup> *Plan for New Reactor Dropped*, N.Y. TIMES, Nov. 7, 1980, <https://www.nytimes.com/1980/11/07/archives/plan-for-new-reactor-dropped.html>.

<sup>60</sup> This figure was generated using an online source for calculating inflation. *The Inflation Calculator*, <https://westegg.com/inflation/> (last visited Jan. 9, 2019).

<sup>61</sup> David Schlissel & Bruce Biewald, *NUCLEAR POWER PLANT CONSTRUCTION COSTS*, SYNAPSE ENERGY ECONOMICS, INC. 8 (July 2008).

<sup>62</sup> Jim Namiotka, *Salem at 40: Four Decades of Nuclear in New Jersey*, ENERGIZE! PSEG (December 20, 2016), <https://energizepseg.com/2016/12/20/salem-at-40-four-decades-of-nuclear-in-new-jersey/>.

both of Salem’s units was \$700 million over budget.<sup>63</sup> The first unit came online one year after its originally scheduled date, and the second unit’s opening was delayed by over five years.<sup>64</sup>

Companies are understandably reluctant to invest in new nuclear power generation projects given these struggles. Despite these uncertainties, the Salem-Hope Creek Generating Facility has positively impacted the State in many ways. As the second largest nuclear generating facility in the United States,<sup>65</sup> the facility generates enough electricity for three million homes daily<sup>66</sup> and is the largest employer in the county with 1,500 employees.<sup>67</sup> Most importantly for its survival, the electricity generated at the site produces no greenhouse gas emissions.<sup>68</sup> Plant operators, however, are not compensated for the beneficial impact nuclear power has in helping the state reach clean energy goals.<sup>69</sup> To understand why, one must understand the market within which nuclear power generators must operate.

## B. The Market for Nuclear

The recent introduction of competitive markets into the traditionally regulated energy industry has injected more uncertainty into the nuclear landscape. “Traditionally regulated” means that one, vertically integrated electric utility company oversees the entire chain of power delivery for a designated region.<sup>70</sup> State commissions set rates, promising a “fair return” to the private

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<sup>63</sup> I tried very hard to find this article again but it isn’t coming up. I am going to find it and update this footnote appropriately.

<sup>64</sup> *Id.*

<sup>65</sup> *Hope Creek Nuclear Generating Station Facts*, QUEEN ANNE’S COUNTY MARYLAND WEBSITE, <https://www.qac.org/DocumentCenter/View/732/Hope-Creek-Generating-Station-PDF?bidId=>.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> *Id.* Nuclear fission reactions are themselves free of carbon emissions. However, the nuclear power “lifecycle”, including uranium mining, milling, and enrichment, fuel fabrication, reactor construction, reactor decommissioning, fuel reprocessing, nuclear waste disposal, and mine site rehabilitation.

<sup>69</sup> *See, infra*, Part II.B.1.

<sup>70</sup> ARTHUR MAZER, *ELECTRIC POWER PLANNING FOR REGULATED AND DEREGULATED MARKETS 1* (2007).

companies who serve the power grid in exchange for reliable service to the general public.<sup>71</sup> Electric utilities were initially thought to be natural monopolies, and competition within this market was inappropriate.<sup>72</sup>

The approach to electric power markets started to shift in the 1980s. As described in Part A, large investment into nuclear projects turned out to be “uneconomical.”<sup>73</sup> This was coupled with a “sea change” in economic thinking during this time, which showed “increased faith in the ability of markets to achieve efficient outcomes through competition and reduced faith in the ability of governments to achieve efficient outcomes through regulation or production of service.”<sup>74</sup> By deregulating the chain of power delivery, market participants would each fill a different role: generation on one side, transmission and distribution of the electricity on the other.<sup>75</sup> This “unbundling” of vertically integrated utilities was intended to increase the efficiency of investment into new generating plants, placing the risk of managerial decisions and changes in market conditions on suppliers of generation service.<sup>76</sup> Ending the politicized resource planning process was meant to benefit the ratepayer, bringing down high electricity prices by providing better incentives to control construction costs, improve operating performance, innovate in generating technology and retire generators that are uneconomic.<sup>77</sup>

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<sup>71</sup> David B. Spence, *Naïve Energy Markets*, 93 NOTRE DAME L. REV. 973, 1010 (2017).

<sup>72</sup> David B. Spence, *Can Law Manage Competitive Energy Markets*, 93 CORNELL L. REV. 765, 767 (2008).

<sup>73</sup> Paul L. Joskow, *Deregulation and Regulatory Reform in the U.S. Electric Power Sector*, in DEREGULATION OF NETWORK INDUSTRIES 113, 120–21 (Sam Peltzman & Clifford Winston eds. 2000), [https://www.jstor.org/stable/10.7864/j.ctvdmx09q?turn\\_away=true](https://www.jstor.org/stable/10.7864/j.ctvdmx09q?turn_away=true).

<sup>74</sup> Spence, *supra* note 72, at 770.

<sup>75</sup> Mazer, *supra* note 70, at xi (“Traditionally, utilities have assumed the role of planning and operating power systems on behalf of their customers. Utilities have developed expertise in these areas. As the industry moves away from a utility environment, other market participants are assuming the functions that utilities had. The Independent System Operator (ISO) operates the transmission network. Independent Power Producers (IPPs) build, own, and operate plants. Retailers procure load on behalf of a customer base. Within a traditionally regulated utility environment, these responsibilities are within the purview of utility planning. Within the new environment, they fall under new labels: asset management, investment analysis, and risk management.”)

<sup>76</sup> Joskow, *supra* note 73, at 121.

<sup>77</sup> *Id.* at 121, 185.

The Federal Energy Resource Commission (FERC) issued a series of initiatives to encourage deregulation.<sup>78</sup> Utilities were encouraged to divest generation assets and instead buy and sell generation services on competitive wholesale markets.<sup>79</sup> As some state utilities fell in line and restructured their utility business models, interstate wholesale power market institutions were formed.<sup>80</sup> There are now seven regional markets in the U.S., each organized as a regional transmission operator (RTO) or independent system operator (ISO), serving the same functions: operate the transmission grid, dispatch generators and organize wholesale energy markets.<sup>81</sup> Sixteen states and the District of Columbia operate within regional markets.<sup>82</sup> New Jersey is one such deregulated state operating within the PJM Interconnection regional market.<sup>83</sup>

As energy markets have trended toward increased competition and energy pricing through market mechanisms, Professor David Spence posits that the two basic challenges of energy policy are to (1) ensure well-functioning markets and fair prices and (2) manage the “many and varied externalities associated with the production and delivery of energy.”<sup>84</sup> As energy markets become freer, government regulation is introduced to ameliorate the inefficient or unfair consequences of market failure.<sup>85</sup> PSEG CEO Ralph Izzo states that there are “public policy objectives to be achieved that are not directly reflected in the cost of producing energy” and that energy markets don’t work when the positive externalities are not priced.<sup>86</sup>

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<sup>78</sup> Spence, *supra* note 72, at 773–74.

<sup>79</sup> Joskow, *supra* note 73, at 127.

<sup>80</sup> *Id.* at 126.

<sup>81</sup> *Electric Power Markets: National Overview*, FED. ENERGY REGULATORY COMM’N, <https://www.ferc.gov/market-oversight/mkt-electric/overview.asp> (last visited April 21, 2019).

<sup>82</sup> PAUL ZUMMO, AM. PUB. POWER. ASS’N, RETAIL ELECTRIC RATES IN DEREGULATED AND REGULATED STATES 2 (May 2018), <https://www.publicpower.org/system/files/documents/Retail-Electric-Rates-in-Deregulated-States-2017-Update%20%28003%29.pdf>.

<sup>83</sup> *Id.* at 2, 5.

<sup>84</sup> Spence, *supra* note 71, at 975.

<sup>85</sup> JAMES E. HICKEY, JR. ET. AL., ENERGY LAW AND POLICY FOR THE 21ST CENTURY 2–31 (2000).

<sup>86</sup> December 20th Hearing, *supra* note 2, at 6.

The ZEC legislation is intended to price nuclear power’s positive externalities – fuel diversity, air quality, resilience, and other environmental attributes.<sup>87</sup> Before reviewing the ZEC program implementation, one must understand the meaning of these key terms within the statute. It is also important to note that the New Jersey legislature does not operate in a vacuum. FERC’s regulatory actions over RTOs and ISOs are intimately intertwined with member states’ legislative actions. As such, the legislation provides that ZEC payments issued to eligible and selected nuclear power plants are subject to a dollar-for-dollar reduction if federal regulatory initiatives that are intended to compensate nuclear power producers for nuclear power’s positive externalities result in increased revenue for the plants.<sup>88</sup>

1. “Fuel Diversity, Air Quality, Resilience and Other Environmental Attributes”

In the ZEC program’s enabling legislation, ZECs are defined as “certificate[s], issued by the board or its designee, representing the fuel diversity, air quality, and other environmental attributes of one megawatt-hour of electricity generated by an eligible nuclear power plant.”<sup>89</sup> The program requires annual determinations that eligible plants are not paid twice for these attributes.<sup>90</sup> If the generators receive payments from any other source, the ZEC payments will be immediately reduced by the amount of the payment received.<sup>91</sup> The legislative history demonstrates that lawmakers accounted for concerns that potential changes to the PJM market could result in

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<sup>87</sup> See N.J. STAT. ANN. § 48.3-87.4 (2018); N.J. STAT. ANN. § 48.3-87.5(e)(4) (2018).

<sup>88</sup> N.J. STAT. ANN.. § 48.3-87.5(e)(4) (2018).

<sup>89</sup> N.J. STAT. ANN. § 48.3-87.4 (2018).

<sup>90</sup> N.J. STAT. ANN.. § 48.3-87.5(e)(4) (2018).

<sup>91</sup> *Id.*



increased revenue for nuclear power generators.<sup>92</sup> The legislation does not specifically define these termed attributes, which are considered in turn.

First, keeping nuclear power in the generation mix increases fuel diversity. Overdependence on one fuel source is problematic for many reasons. Primarily, it exposes the market to volatile price swings.<sup>93</sup> Price swings can foreclose the opportunity to invest in new technology if industry players suddenly become insolvent because of a reduction in resource affordability. Relatedly, fuel diversity is “the most cost-effective tool available to manage the inherent production cost risk involved in transforming primary energy fuels into electricity.”<sup>94</sup> A diverse resource mix also “helps to ensure stability and reliability in electricity supply and strengthens national security.”<sup>95</sup> Should New Jersey’s nuclear units shut down, natural gas is expected to fill the void because of its prevalence and affordability. PSEG predicts that natural gas will provide ninety-four percent of the electricity to New Jersey without nuclear power in the mix.<sup>96</sup> At that high rate, the protections fuel diversity affords are limited.

Second, nuclear power is lauded for its contributions to improved air quality. The Clean Air Act identifies five pollutants<sup>97</sup> which are linked to chronic diseases and higher mortality rates.<sup>98</sup> Air pollution is responsible for the deaths of seven million people each year, according to an

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<sup>92</sup> See *Hearing on Strategies to Prevent the Premature Retirement of Existing, Licensed, and Operating Nuclear Power Plants*, 2017 Leg., 217th Sess. 58–59 (NJ 2017) [hereinafter December 4th Hearing], transcript available at <https://www.njleg.state.nj.us/legislativepub/pubhear/senatu12042017.pdf>.

<sup>93</sup> George W. Sharp, *Fuel Diversity is Critical in Industry Transition*, POWER, (Sept. 1, 2012), <https://www.powermag.com/fuel-diversity-is-critical-in-industry-transition/>.

<sup>94</sup> J. Scott Peterson, *Analysis: The Value of Electricity Diversity*, THE HILL (Apr. 28, 2015), <https://thehill.com/sponsored/content/240164-analysis-the-value-of-electricity-diversity>.

<sup>95</sup> *Fuel Diversity*, EDISON ELECTRIC INSTITUTE, <http://www.eei.org/issuesandpolicy/generation/fueldiversity/pages/default.aspx> (last visited Feb. 15, 2019).

<sup>96</sup> IMPACTS OF PSEG NUCLEAR UNIT SHUTDOWNS ON NEW JERSEY’S GLOBAL WARMING RESPONSE ACT LIMITS, PSEG 9 (November 2018).

<sup>97</sup> These pollutants are carbon monoxide, particulates, sulfur oxides, nitric oxides, and hydrocarbons. DANIEL A. FARBER & ROGER W. FINDLEY, ENVIRONMENTAL LAW IN A NUTSHELL 102 (8th Ed. 2010).

<sup>98</sup> *Id.*

October 2018 analysis.<sup>99</sup> The reduction in these separate pollutants, aside from carbon dioxide, is the benefit that legislators are identifying when they refer to “air quality” in the statute.

Third, nuclear power contributes to grid resilience. The concept of resilience has been characterized as different from but, interconnected with, reliability.<sup>100</sup> For a power grid to be resilient, it must learn from and adapt to disruptive incidents that are inevitable but cannot always be predicted.<sup>101</sup> In comparison, reliability is more of a “binary” concept, less focused on learning from past mistakes and more on the consistency of system performance.<sup>102</sup> Resilience can be thought of as broader than reliability, concerned about “limiting the scope and impact of outages when they do occur, restoring power rapidly afterwards, and learning from these experiences to better deal with events in the future.”<sup>103</sup>

In New Jersey, the conversation about resilience picked up significantly after Superstorm Sandy,<sup>104</sup> which highlighted that measuring and improving upon power system resilience must also go beyond electricity generation to include transmission and distribution (“T&D”) efforts. In fact, in-depth study of the issue reveals that “few power outages . . . are cause[d] by generation or fuel shortages” and “generation investment is unlikely to be a cost-effective way to reduce customer outages relative to transmission and distribution measures.”<sup>105</sup> Significantly, nuclear

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<sup>99</sup> Monica Serrano & Sean McNaughton, *Polluted Air is Lethal in These Parts of the World*, NAT’L GEOGRAPHIC (Oct. 2018), <https://www.nationalgeographic.com/magazine/2018/10/embark-data-sheet-air-pollution-world-lethal/>.

<sup>100</sup> Aaron Clark-Ginsberg, *What’s the Difference Between Reliability and Resilience?*, DEPARTMENT OF HOMELAND SECURITY: INDUSTRIAL CONTROL SYSTEMS CYBER EMERGENCY RESPONSE TEAM (March 2016), [https://ics-cert.us-cert.gov/sites/default/files/ICSJWG-Archive/QNL\\_MAR\\_16/reliability%20and%20resilience%20pdf.pdf](https://ics-cert.us-cert.gov/sites/default/files/ICSJWG-Archive/QNL_MAR_16/reliability%20and%20resilience%20pdf.pdf)

<sup>101</sup> *Id.*

<sup>102</sup> *Id.*

<sup>103</sup> Rich Heidorn Jr., *DOE Panel Hears Results of Academies’ Resilience Study*, RTOINSIDER (Sept. 17, 2017), <https://www.rtoinsider.com/doe-ferc-grid-study-outages-49484/>.

<sup>104</sup> See Andrew Winston, *Hurricane Sandy Lesson: Resilience Isn’t Enough*, HARVARD BUSINESS REVIEW (Oct. 29, 2014), <https://hbr.org/2014/10/hurricane-sandys-lesson-resilience-isnt-enough>.

<sup>105</sup> Alison Silverstein et. al., A CUSTOMER-FOCUSED FRAMEWORK FOR ELECTRIC SYSTEM RESILIENCE 59 (May 2018), [https://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20180508-5100](https://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20180508-5100).

subsidies were considered “low value” resilience measures because generating capacity additions continue to outpace retirement and load growth.<sup>106</sup> The Federal Energy Regulatory Commission (FERC) has defined resilience as “the ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event.”<sup>107</sup> The value that nuclear power assets add to grid resilience is currently being evaluated.<sup>108</sup>

Lastly, the legislation rewards nuclear power for its “other environmental attributes.” Improvements in air quality standards and reduction in greenhouse gasses like carbon dioxide that contribute to climate change are being treated as two separate categories by legislators. When legislators refer to the “other environmental attributes” of nuclear power, they are referring to the beneficial impact nuclear power generation has in fighting against the harmful effects of climate change. The effects of carbon dioxide on our atmosphere are unnerving,<sup>109</sup> well-documented,<sup>110</sup> and the impetus for the aggressive target dates set by states to eliminate carbon-emitting fuel sources from their energy resource mix.<sup>111</sup>

The legislation’s focus on these beneficial attributes of nuclear power indicates that the state intends to reward nuclear plants for these contributions. The purpose of the ZEC program

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<sup>106</sup> *Id.* at 60.

<sup>107</sup> Elisa Wood, *Electric Resilience to get FERC-level Attention. But Not the Way the Trump Administration Hoped*, MICROGRID KNOWLEDGE (Jan. 9, 2018), <https://microgridknowledge.com/resilience-ferc/>.

<sup>108</sup> See December 4th Hearing, *supra* note 92.

<sup>109</sup> See Haskins, *supra* note 23.

<sup>110</sup> The extent of climate change studies throughout the world in the past century is so pervasive that it has become almost less of a scientific issue than a political issue, even though it must be grounded in science to have any meaning. See Cary Funk & Brian Kennedy, *The Politics of Climate*, PEW RESEARCH CENTER: INTERNET & TECHNOLOGY (Oct. 4, 2016), <http://www.pewinternet.org/2016/10/04/the-politics-of-climate/> (“There are ... major divides in the way partisans interpret the current scientific discussion over climate, with the political left and right having vastly divergent perceptions of modern scientific consensus, differing levels of trust in the information they get from professional researchers, and different views as to whether it is the quest for knowledge or the quest for professional advancement that drives climate scientists in their work.”).

<sup>111</sup> See N.J. STAT. ANN. § 48.3-87.3(1) (2018).

runs deeper, however. Approximately one third of New Jersey’s electric power is generated by Salem-Hope Creek.<sup>112</sup> This legislation is intended to do more than correct for market inefficiencies. It is a recognition that if markets work as intended – forcing uneconomic assets into early retirement – the State will not have the generating capacity from clean energy sources to simultaneously meet high electricity demand and ambitious carbon reduction goals.

## 2. New Jersey’s Clean Energy Goals

May 23, 2018 was a momentous day for the future of New Jersey’s clean energy economy. An executive order and two separate bills were signed into law by Governor Phil Murphy – Executive Order No. 28, A3723, and S2313.<sup>113</sup> Collectively, they established a plethora of programs, standards and incentives intended to meet State goals.<sup>114</sup>

Executive Order No. 28 directs state agencies (including the BPU) to develop an updated Energy Master Plan (EMP) that provides a path to one hundred percent clean energy by 2050.<sup>115</sup> The order fails to define “clean energy,” but condemns “traditional methods of energy production that rely on the burning of fossil fuels” as harmful. Clean energy is any method of energy production that does not require the burning of fossil fuels to generate power. The Department of Energy’s website lists solar, wind, water, geothermal, bioenergy and nuclear as the currently available energy resources that will carry the day in the clean energy revolution.<sup>116</sup>

The first bill – A3723 – requires the state’s Renewable Portfolio Standard to be fifty percent by 2030 and sweeps broadly in setting up goals and programs for different sources of renewable

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<sup>112</sup> See *Electric Power Monthly with Data for October 2018*, *supra* note 41.

<sup>113</sup> *Governor Murphy Signs Measures to Advance New Jersey’s Clean Energy Economy*, STATE OF NEW JERSEY (May 23, 2018), [https://nj.gov/governor/news/news/562018/approved/20180523a\\_cleanEnergy.shtml](https://nj.gov/governor/news/news/562018/approved/20180523a_cleanEnergy.shtml).

<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

<sup>116</sup> *Clean Energy*, ENERGY.GOV, <https://www.energy.gov/science-innovation/clean-energy> (last visited Feb. 2, 2019).

energy, including offshore wind, solar and energy storage.<sup>117</sup> In November 2018, the state and its university, Rutgers, agreed to a six-month, \$300,000 contract to analyze the needs and opportunities for energy storage within the state.<sup>118</sup>

Lastly, the second bill – S2313 – is the legislation that enables the BPU to set up a ZEC program for both in-state and out-of-state producers of nuclear power.<sup>119</sup> The bill sets timelines and guidelines for the establishment of the program by the BPU.<sup>120</sup> The program signifies New Jersey’s commitment to nuclear power as part of its clean energy future. The ZEC program intends to prevent against the early – and permanent – retirement of Salem-Hope Creek and retain New Jersey’s most significant source of zero-carbon electricity generation. The foregoing sections – including New Jersey’s deregulated power market, the beneficial attributes of nuclear power not factored into its market price, and the State’s clean energy goals – provide a useful framework for analyzing the statute’s language as well as the political battles that have played out over the course of the program’s implementation.

### III. The Zero Emission Certificate Program

The enabling legislation for the program was signed into law by Governor Phil Murphy on May 23, 2018. As of that date, the BPU was statutorily required to adopt a method for determining eligibility and selection of nuclear power plants to participate in the State’s ZEC program by November 19, 2018.<sup>121</sup> On that day, the BPU issued an order affirming the program and its

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<sup>117</sup> *Id.*

<sup>118</sup> Michelle Brunetti, *N.J. regulator contracts with Rutgers for energy storage analysis*, PRESS OF ATLANTIC CITY (October 30, 2018), [https://www.pressofatlanticcity.com/news/breaking/n-j-regulator-contracts-with-rutgers-for-energy-storage-analysis/article\\_28c0ae7c-ac22-5ad8-ba85-038404f5b316.html](https://www.pressofatlanticcity.com/news/breaking/n-j-regulator-contracts-with-rutgers-for-energy-storage-analysis/article_28c0ae7c-ac22-5ad8-ba85-038404f5b316.html).

<sup>119</sup> See *Governor Murphy Signs Measures to Advance New Jersey’s Clean Energy Economy*, *supra*, note 114.

<sup>120</sup> *Id.*

<sup>121</sup> N.J. STAT. ANN. § 48.3-87.5(b)(1) (2018).

application process.<sup>122</sup> As stipulated by the November 19 Order, PSEG<sup>123</sup> and Exelon submitted applications to the BPU for the Salem I, Salem II and Hope Creek units on December 19, 2018.<sup>124</sup> In conjunction with the BPU, the Division of Rate Counsel’s Director, Stefanie A. Brand,<sup>125</sup> and PJM’s Independent Market Monitor (IMM), Joseph Bowring,<sup>126</sup> reviewed the applications to determine eligibility.<sup>127</sup> Brand and Bowring were granted intervenor status<sup>128</sup> which allowed them to review applicants’ confidential financial information.<sup>129</sup> The redacted comments lay bare that the most hotly contested issue is whether PSEG requires the ZEC payments to continue operating its nuclear plants in the near term.

### A. Legislative History

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<sup>122</sup> I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants, Order Establishing the Program, Application, and Procedural Process (Nov. 19, 2018) <https://www.bpu.state.nj.us/bpu/pdf/boardorders/2018/20181120/11-19-18-9A.pdf> (hereinafter “November 19 Order”).

<sup>123</sup> A brief history of PSEG and its related entities is required. In 1903, Public Service Corporation was formed, consolidating over 400 transportation, gas and electric companies. Public Service Electric & Gas (PSE&G) was formed shortly thereafter in 1928 when Public Service Corporation merged its electric and gas utilities into a single company. Public Service Corporation dissolved in 1948 and PSE&G became an independent company. In 1985, Public Service Enterprise Group (PSEG) Incorporated was created as a holding company which currently has three operating subsidiaries: PSE&G, PSEG Long Island, and PSEG Power. *Public Service Enterprise Group*, WIKIPEDIA, [https://en.wikipedia.org/wiki/Public\\_Service\\_Enterprise\\_Group](https://en.wikipedia.org/wiki/Public_Service_Enterprise_Group) (last visited Nov. 11, 2018). PSEG Power is most relevant for the purposes of this article. PSEG Power has five main subsidiaries: PSEG Nuclear, LLC; PSEG Fossil, LLC; PSEG Energy Resources & Trade, LLC; PSEG Power Ventures; and PSEG Energy Solutions. PSEG Nuclear owns and operates all three active nuclear units in New Jersey. *PSEG Power*, PUB. SERV. ENTER. GRP. INC., <https://corporate.pseg.com/aboutpseg/companyinformation/thepsegfamilyofcompanies/psegpower> (last visited Nov. 11, 2018).

<sup>124</sup> *PSEG Nuclear LLC – ZEC Applications*, PSEG, [https://corporate.pseg.com/aboutpseg/companyinformation/thepsegfamilyofcompanies/zec\\_applications](https://corporate.pseg.com/aboutpseg/companyinformation/thepsegfamilyofcompanies/zec_applications) (last visited Feb. 14, 2019).

<sup>125</sup> As the Director of the Division of Rate Counsel, Stefanie A. Brand represents the interests of consumers of regulated electric, natural gas, water/sewer, telecommunications, cable TV service, and insurance. *Meet the Division Director*, STATE OF NEW JERSEY DIVISION OF RATE COUNSEL, <https://www.state.nj.us/rpa/about/director/> (last visited Feb. 15, 2019).

<sup>126</sup> Dr. Bowring has been the Independent Market Monitor for PJM, responsible for all market monitoring activities of PJM Interconnection, since 1999. He has served as senior staff economist for the New Jersey Board of Public Utilities and as Chief Economist for the New Jersey Department of the Public Advocate's Division of Rate Counsel. *Executive Team*, MONITORING ANALYTICS

<sup>127</sup> November 19 Order, *supra* note 122, at 13-14.

<sup>128</sup> *Id.*

<sup>129</sup> Intervenor status is conditioned upon acceptance of Agreement of Non-Disclosure of Information Claimed to Be Confidential (NDA). *Id.* at 7-8.

Discussions surrounding this program began on the State’s Senate floor on December 4, 2017.<sup>130</sup> The split between those who favored and did not favor legislation implementing the program was less about environmental issues and more about whether consumers and businesses in the state need to be paying PSEG and Exelon for uncertainty in the market. In fact, one speaker noted the fact that environmentalists came to the floor with pro-nuclear stances is “a testament to how much has changed.”<sup>131</sup>

First to speak was PSEG CEO Ralph Izzo. His recommended approach was: (1) have the BPU administer an economic need test; (2) compensate the ratepayers for market “corrections” on the federal or PJM regional level; and (3) revisit the program every three years.<sup>132</sup> Speaking in agreement, Congressman Frank LoBiondo said that “state government plays an important role in addressing market flaws in wholesale energy markets,”<sup>133</sup> suggesting that Izzo and others are right that the market should pay nuclear power generators for its positive externalities.

In contrast, William Harla, an attorney representing the New Jersey Coalition for Fair Energy, believed that such a proposal will “distort the marketplace, and create an unfair advantage” for one power producer over another.<sup>134</sup> He also called the proposal a plan to re-regulate a market that PSEG fought hard to deregulate in the 1999 and 2000.<sup>135</sup> A representative for New Jersey Large Energy Users Coalition (NJLEUC) said that “the state should not be correcting market issues.”<sup>136</sup> Dennis Hart, Executive Director of the Chemical Industry Council of New Jersey, said

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<sup>130</sup> See generally December 4th Hearing, *supra* note 92.

<sup>131</sup> *Id.* at 40.

<sup>132</sup> *Id.* at 11.

<sup>133</sup> *Id.* at 17.

<sup>134</sup> *Id.* at 56-57.

<sup>135</sup> See December 4th Hearing, *supra* note 92, at 59.

<sup>136</sup> *Id.* at 56-57.

that PSEG not earning the cost of capital is something altogether different from not being profitable and therefore not economically viable.<sup>137</sup>

Lastly, intervenors Joseph Bowring and Stefanie Brand both contributed at the hearing. Dr. Bowring's point was straightforward: "The market is working."<sup>138</sup> He went on to say that there is a "temptation" to look for out-of-market solutions in times of stress, but that subsidies are "contagious," suggesting that programs in New York and Illinois are causing regulators to inject out-of-market solutions into a market that is functioning without it.<sup>139</sup> He conceded that pricing carbon may be a necessary next step, but that subsidizing specific plants is not the way forward.<sup>140</sup> Ms. Brand's contributions were less definitive. She suggested that in-market solutions were more appropriate, but mainly posited that it put ratepayers at risk to rush through "lame duck" legislation without definitively knowing that these nuclear power plants are losing money as a result of market forces.<sup>141</sup>

On December 14, 2017, a bill was introduced to establish a "Nuclear Diversity Certificate" Program, but failed to pass.<sup>142</sup> On January 9, 2018, the bill was reintroduced that was largely identical. At a hearing on January 25, 2018, Senate President Stephen M. Sweeney, sponsor of the bill, stated: "This creates one thing – a process of review where PSEG will show their books to the BPU and BPU has the authority and ability to make a determination at that point. There is no

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<sup>137</sup> *Id.* at 65.

<sup>138</sup> *Id.* at 68. For Dr. Bowring, the market is "working" when it is operating based on principles of economic efficiency. His overall outlook is unchanged by the fact that a "working" market may permanently close nuclear power plants that are key to carbon reduction goals.

<sup>139</sup> *Id.* at 69.

<sup>140</sup> December 4th Hearing, *supra* note 92, at 69-70.

<sup>141</sup> *Id.* at 89.

<sup>142</sup> Stefanie A. Brand, Division of Rate Counsel, Comment Brief I/M/O the Implementation of L. 2018, C.16 Regarding the Approval Establishment of a Zero Emission Certificate Program for Tariff Eligible Nuclear Power Plants, p. 14-15 (Jan. 31, 2019) [https://www.bpu.state.nj.us/bpu/pdf/publicnotice/zec%20comments/EO18080899\\_Zero\\_Emission\\_Certificate\\_Program\\_Rate\\_Counsel\\_PUBLIC%20VERSIO....pdf](https://www.bpu.state.nj.us/bpu/pdf/publicnotice/zec%20comments/EO18080899_Zero_Emission_Certificate_Program_Rate_Counsel_PUBLIC%20VERSIO....pdf) (hereinafter "Stephane A. Brand Comment Brief").



guarantee here.”<sup>143</sup> Although the January 9 Bill did not pass, the bill that was introduced on March 22 and passed on April 12 is in line with Senator Sweeney’s statement.

## B. The ZEC Act

The law introducing the ZEC program required New Jersey’s Board of Public Utilities<sup>144</sup> to adopt a method for determining eligibility and selection of nuclear power plants to participate in the program by November 19, 2018.<sup>145</sup> The act also establishes plant eligibility criteria. An eligible plant shall: (1) be licensed by the U.S. Nuclear Regulator Commission<sup>146</sup> (NRC) through 2030; (2) demonstrate a significant and material contribution to New Jersey air quality (“minimizing emissions”); (3) demonstrate anticipated plant shut down within three years due to its financial condition; (4) certify that the facility does not receive any payments from other entities or agencies; and (5) submit an application fee of \$250,000 for each eligibility period.<sup>147</sup>

Once plants are determined to be eligible, they are ranked according to how well the plant satisfies eligibility criteria.<sup>148</sup> The distribution of ZECs is limited to forty percent of the total number of megawatt-hours distributed by the electric public utilities in the state for the previous energy year.<sup>149</sup> Some critics believe this requirement will mean that New Jersey ratepayers must buy forty percent of their electricity from nuclear power plants, requiring out-of-state nuclear

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<sup>143</sup>*Id.* at 15.

<sup>144</sup> The BPU is a quasi-judicial body that invites petitions to be filed on issues of consumer protection, energy reform, deregulation of energy and the restructuring of utility rates to encourage energy conservation and competitive pricing in the industry. *About BPU*, STATE OF NEW JERSEY BOARD OF PUBLIC UTILITIES, <https://www.nj.gov/bpu/about/index.html> (last visited Nov. 4, 2018).

<sup>145</sup> N.J. STAT. ANN. § 48.3.87.5(b)(1) (2018).

<sup>146</sup> The U.S. Nuclear Regulatory Commission (NRC) was created as an independent agency by Congress in 1974 to ensure the safe use of radioactive materials for beneficial civilian purposes while protecting people and the environment. The NRC regulates commercial nuclear power plants and other uses of nuclear materials, such as in nuclear medicine, through licensing, inspection and enforcement of its requirements. *About NRC*, U.S. NUCLEAR REG. COMMISSION, <https://www.nrc.gov/about-nrc.html> (last visited Feb. 14, 2019).

<sup>147</sup> N.J. STAT. ANN. § 48.3.87.5(e)(1)-(5) (2018).

<sup>148</sup> N.J. STAT. ANN. § 48.3.87.5(f) (2018).

<sup>149</sup> N.J. STAT. ANN. § 48.3.87.5(g)(1) (2018).

plants to fill the void.<sup>150</sup> This is a mischaracterization of the law. The law does not require that the Board distribute ZECs for forty percent of the megawatt-hours distributed in the previous energy year. The law states that the Board cannot distribute ZECs beyond forty percent.

ZECs will be funded through a “non-bypassable, irrevocable charge imposed on the electric public utility’s retail distribution customers”<sup>151</sup> (the ratepayers), which is meant to reflect the “emissions avoidance benefits associated with the continued operation of selected nuclear power plants.”<sup>152</sup> This charge is a tariff that has been approved by the Board at the required price of \$0.004 per kilowatt-hour.<sup>153</sup> Revenue from the tariff will be placed in a separate interest-bearing account for the sole purpose of purchasing ZECs from the participating nuclear plants.<sup>154</sup> The board retains the discretion to reduce the charge passed on to the ratepayer to ensure that the “ZEC program remains affordable.”<sup>155</sup> The reduction can only take effect in a second eligibility period, meaning that the tariff rate is locked in for a three year period for eligible and selected plants.<sup>156</sup>

### C. The November 19 Order

On September 11, 2018, the BPU solicited comments and scheduled three public hearings by issuing a Public Order,<sup>157</sup> and the November 19 Order summarized the comments and hearings.<sup>158</sup> The positions of each of the participants and commenters remained unchanged from the initial legislative hearings, with opponents concerned mainly that the process be transparent.

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<sup>150</sup> *BPU Holds Nuclear Subsidy Public Hearing in AC*, INSIDER NJ (Oct. 10, 2018, 5:43 PM), <https://www.insidernj.com/press-release/bpu-holds-nuclear-subsidy-public-hearing-ac/>.

<sup>151</sup> N.J. STAT. ANN. § 48.3.87.5(j)(1) (2018).

<sup>152</sup> *Id.*

<sup>153</sup> November 19 Order, *supra*, note 122, at 2.

<sup>154</sup> N.J. STAT. ANN. § 48.3.87.5(j)(1) (2018).

<sup>155</sup> N.J. STAT. ANN. § 48.3.87.5(j)(3)(a) (2018).

<sup>156</sup> N.J. STAT. ANN. § 48.3.87.5(j)(3)(b) (2018).

<sup>157</sup> I/M/O of the implementation of l. 2018, c. 16 regarding the establishment of a zero emission certificate program for eligible nuclear power plants, Notice of Public Hearings (Sept. 11, 2018), <https://www.bpu.state.nj.us/bpu/pdf/publicnotice/ZEC-Program-Public-Hearing-Notice.pdf>.

<sup>158</sup> November 19 Order, *supra*, note 122 at 2.

The BPU responded to this concern by granting motions by the Rate Counsel (Ms. Brand) and the IMM for PJM (Dr. Bowring) for access to the applicants' confidential financial data that will be submitted by the applicants.<sup>159</sup>

The order firmly establishes five eligibility criteria for nuclear power plants and creates two “teams” within the BPU: an “Eligibility team” and a “Ranking team.”<sup>160</sup> If the Eligibility team determines that the an application is complete<sup>161</sup>, the Ranking team will have discretion in “scoring” the applications. The scoring can either be based on a pre-developed scoring matrix or another approach if the Ranking team decides that it is more practical.<sup>162</sup> Each application must be scored to comply with the statutory requirement that eligible nuclear power plants are ranked and ZECs are distributed based on rank up forty percent of the total output from the previous energy year.

#### D. Positions of Intervenors

The IMM and Ratepayer Advocate provided comments on the applications submitted by Salem I, Salem II and Hope Creek. Each application certified that the unit will close within three years absent a “material financial change,”<sup>163</sup> and that retirement decisions will be made in the normal course of business consistent with the best interests of the shareholders.<sup>164</sup>

PSEG Nuclear backs its position that a material financial change is unlikely because: (i) forward energy prices remain low; (ii) regulatory and compliance costs remain high; (iii) carbon

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<sup>159</sup> *Id.* at 13-14.

<sup>160</sup> November 19 Order, *supra*, note 122, at 10.

<sup>161</sup> An application will be deemed complete if all required information to satisfy all the eligibility criteria is submitted. *Id.* at 11.

<sup>162</sup> *Id.*

<sup>163</sup> N.J. STAT. ANN. § 48.3.87.5(a) (2018). Material financial change is not defined by the statute.

<sup>164</sup> *See PSEG Nuclear LLC – ZEC Applications, supra*, note 124.

abatement policy remains elusive; and (iv) projected revenues do not fully cover projected costs over the next three years.<sup>165</sup> The legislation permits two ways for plants to demonstrate financial need. First, a plant can show that it does not project to cover its “risk-adjusted cost of capital.”<sup>166</sup> Second, it can certify that it is not projected to fully cover its costs and risks, including both operational and market risks.<sup>167</sup> PSEG explicitly chose to certify its financial need with the second option.

As Ralph Izzo stated in the legislative hearing on December 20, 2017, “everything I said . . . is subject to second-guessing.”<sup>168</sup> The intervenors have answered that call. Upon review of the confidential financial data, each intervenor conveys their belief that the applicants have overstated their costs and understated their revenues, and therefore do not meet their statutory burden of demonstrating that the plants are at risk of closure within three years absent a material financial change. Ms. Brand calls the costs “speculative and inappropriate” and goes as far to say that the costs are not verifiable.<sup>169</sup> She states that the energy price projections should have used a range of values instead of price forwards.<sup>170</sup> She also said that the application failed to account for future natural gas prices, did not include the benefits of the new tax code, and does not do an analysis of price impacts in the event that only one (or two) of the units shuts down.<sup>171</sup> Ms. Brand believes that the BPU’s decision will not be based on a “full record relevant to the proceeding.”<sup>172</sup> She

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<sup>165</sup> *Id.*

<sup>166</sup> N.J. STAT. ANN. § 48.3.87.5(a). Cost of capital was rejected as a metric to be used for economic viability by Dennis Hart in the legislative hearings. *See* December 4, 2017 Joint Committee Hearing, *supra*, note 137.

<sup>167</sup> N.J. STAT. ANN. § 48.3.87.5(a).

<sup>168</sup> Transcript of December 20, 2017 Joint Committee Meeting, available at <https://www.njleg.state.nj.us/legislativepub/pubhear/senatu12202017.pdf>.

<sup>169</sup> Stephane A. Brand Comment Brief, *supra*, note 142 at 19.

<sup>170</sup> *Id.* at 27.

<sup>171</sup> *Id.* at 29.

<sup>172</sup> *Id.* at 30.

further hints that this is the first time that PSEG has indicated that its plants are at risk of loss, despite the opportunity to do so in prior proceedings.<sup>173</sup>

Moreover, Ms. Brand interestingly argues that PSEG is wrong to say that the tariff rate of \$0.004 per kilowatt hour is “immutable.”<sup>174</sup> She argues that “clear statutory mandates” give the BPU broad discretion to establish “just and reasonable rates.”<sup>175</sup> While that is true generally, that discretion has been limited somewhat by the legislature during the first eligibility period of the program. As Dr. Bowring’s comments on the submitted applications confirm, the decision of the BPU is “binary.”<sup>176</sup> The BPU must either grant participation in the program at the set rate or deny the application outright. Dr. Bowring does note, however, that unit owners have an ongoing option to apply and re-apply.<sup>177</sup> The November 19 Order confirms that when the BPU conducts its yearly review of the program, they will also “review any new applications under the same program guidelines.”<sup>178</sup> It is therefore Dr. Bowring’s position that the applicants should be rejected this energy year so that aforementioned FERC proceedings regarding the energy market price in PJM can play out and give more clarity into expected energy prices going forward.

The BPU has acknowledged that the IMM is in “a unique position to review the financial viability of nuclear power plants seeking ZECs based on its experience” and “is essential to aid the Board in making the determinations required by the Act.”<sup>179</sup> It further found that “the IMM’s ability to contribute to a complete and thorough review of information submitted by applicants

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<sup>173</sup>

<sup>174</sup> *Id.* at 50.

<sup>175</sup> *Id.*

<sup>176</sup> ANALYSIS OF NJ ZERO EMISSIONS CERTIFICATE (ZEC) APPLICATIONS, MONITORING ANALYTICS, THE INDEPENDENT MARKET MONITOR OF PJM 4 (Jan. 31, 2019) <https://www.bpu.state.nj.us/bpu/pdf/publicnotice/zec%20comments/2019-01-31%20ZECs%20Report%20-%20%20Redacted%20IMM.pdf> (hereinafter Dr. Joseph Bowring Comment Brief).

<sup>177</sup> *Id.*

<sup>178</sup> November 19 Order, *supra*, note 122 at 12.

<sup>179</sup> November 19 Order, *supra*, note 122 at 12.

would significantly and substantially contribute to the Board’s understanding and determination of issues in this proceeding.” Moreover, the BPU found that the Rate Counsel’s “role as the public interest representative and advocate for all ratepayers, is essential to aid the Board in making the determinations required by the Act.”<sup>180</sup>

Aside from disclosure of applicants’ confidential financial information, however, the BPU does not explicitly grant the intervenors any additional powers. The power to appeal the BPU’s decision is likely to be the only other tool afforded to the intervenors.<sup>181</sup> The likelihood of a successful appeal of the BPU’s decision to grant all three applications is unlikely, given the great deference that is afforded to administrative agencies<sup>182</sup> and the undefined language in the statute that grants the BPU discretion in awarding program eligibility. Coupled with the unsuccessful constitutional challenges to the ZEC programs in New York and Illinois,<sup>183</sup> successful judicial challenge to the legislation or BPU decision seems highly unlikely.

#### IV. Analysis of Competing Agendas

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<sup>180</sup> *Id.*

<sup>181</sup> For reference, parties granted intervenor status in FERC proceedings have the right to (i) participate in hearings before FERC’s administrative law judges, (ii) file briefs, (iii) file for rehearing of a Commission decision, (iv) have legal standing in a Court of Appeals if they challenge the Commission’s final decision, and (v) be placed on a service list to receive copies of case-related Commission documents and filings by other intervenors. *Active Participation/Intervention in FERC Cases*, FED. ENERGY REG. COMMISSION, <https://www.ferc.gov/resources/faqs/active-int.asp> (last visited Feb. 15, 2019).

<sup>182</sup> Most decisions by administrative agencies are subject to an arbitrary, capricious, or unreasonable standard of review, and carry a presumption of validity. Under that standard, an appellate court will only reverse the determination of the agency if it is shown that the determination was arbitrary or a violation of legislative policy. Edwin F. Chociey, Jr. et al, § 4.16 *Generally*, N.J. PRACTICE SERIES: APPELLATE PRACTICE AND PROCEDURE (Dec. 2017 Update), <https://1.next.westlaw.com/Document/Id7be4a354e0b11daa2cbce2eb539ceca/View/FullText.html?navigationPath=Search%2Fv1%2Fresults%2Fnavigation%2Fi0ad74035000016a4ca804fc6fef21f3%3FNav%3DANALYTICAL%26fragmentIdentifier%3DId7be4a354e0b11daa2cbce2eb539ceca%26startIndex%3D1%26contextData%3D%2528sc.Search%2529%26transitionType%3DSearchItem&listSource=Search&listPageSource=74cba95e2db2a1e94878af688ccc5866&list=ANALYTICAL&rank=3&sessionScopeId=68be175ac69479d7e162a47f26d5af8380eb9fa871b13077197ff303ee3d0d01&originationContext=Search%20Result&transitionType=SearchItem&contextData=%28sc.Search%29>.

<sup>183</sup> *See* *Coal. for Competitive Elec. v. Zibelman*, *supra* note 25.

The first three parts of this Comment explore the history of nuclear power in the U.S. and New Jersey, explaining why state legislators have decided to explore policy options to prevent early plant retirement. The BPU’s determination of applicant eligibility felt very much like a “battle of the experts,” where a court must decide between (1) conducting, for example, its own valuation of a corporation’s stock or actual damages in a tort claim and (2) determining which party’s expert witness has put forth the most credible information. The BPU was similarly faced with determining whether the analysis put forth by the intervenors recommending denial was more credible than the applicants’ own certifications that they are at risk of closure within three years and that they are unlikely to experience a material financial change.

It is tempting to jump to the conclusion that PSEG engaged in “rent-seeking” behavior, in which a business uses its position or resources to obtain some additional government benefit.<sup>184</sup> Put another way, rent-seeking is the act of attempting to increase existing wealth without creating new wealth.<sup>185</sup> As noted by Dr. Bowring, subsidies are contagious.<sup>186</sup> His comments suggest that PSEG is attempting to capitalize on the similarly enacted programs in New York and Illinois despite its ability to continue to operate Salem-Hope Creek profitably. Dr. Bowring, however, is not without his own agenda.

In his 2018 State of the Market report, Dr. Bowring states that “[i]t is the job of the [Market Monitoring Unit] to defend competitive markets.”<sup>187</sup> The report goes on to say that “[t]he unit specific subsidy model” such as the ZEC program “is inconsistent with the PJM market design and

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<sup>184</sup> Christina Majaski, *Rent-Seeking*, INVESTOPEDIA (Mar. 25, 2019), <https://www.investopedia.com/terms/r/rentseeking.asp>.

<sup>185</sup> *Rent-Seeking: A Primer*, FOUNDATION FOR ECONOMIC EDUCATION (Nov. 1, 2003), <https://fee.org/articles/rent-seeking-a-primer/>.

<sup>186</sup> See December 4th Hearing, *supra* note 139.

<sup>187</sup> MONITORING ANALYTICS, LLC, 2018 STATE OF THE MARKET REPORT FOR PJM 1 (2019).

inconsistent with the market paradigm and constitutes a significant threat to both.”<sup>188</sup> Dr. Bowring’s conclusions are based on the fundamental theory that “markets solution[s] must recognize the role of competitive markets[.]”<sup>189</sup> Dr. Bowring likely fully appreciates that the market may in fact force Salem-Hope Creek into early and permanent retirement – he may just fail to see this as a problem that must be prevented. As mentioned previously, those who favor market design believe that the closing of uneconomic plants represents a significant benefit of restructuring and competition in the electricity sector.<sup>190</sup> Dr. Bowring states that a market approach to carbon is the preferred approach, instead of a technology or unit specific subsidy approach.<sup>191</sup> The market may be indifferent to permanent plant closure and state clean energy goals, and New Jersey has acted to prevent market indifference from impeding the ultimate goal of carbon emission reduction.

Ultimately, the BPU determined that it could not risk permanent plant closure.<sup>192</sup> The BPU is tasked with obtaining clean energy goals that will be impossible to meet without the continued existence of Salem-Hope Creek in the near term. When issuing its decision, the BPU cited the “moral imperative for the State to invest in energy infrastructure that does not produce greenhouse gasses.”<sup>193</sup>

Rate increases resulting from the award of ZECs to program applicants may be more than a mere annoyance to the average homeowner. Large businesses may see six to seven-figure

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<sup>188</sup> *Id.* at 3.

<sup>189</sup> *Id.* at 2.

<sup>190</sup> See Joskow, *supra* note 73, at 185.

<sup>191</sup> 2018 STATE OF THE MARKET REPORT FOR PJM, *supra* note 178, at 3.

<sup>192</sup>

<sup>193</sup> Citing *Urgency of Climate Change, New Jersey Board of Public Utilities Awards ZECs to Preserve Salem One and Two and Hope Creek*, ST. OF N.J. BD. OF PUB. UTIL. (Apr. 18, 2019) <https://www.bpu.state.nj.us/bpu/newsroom/2019/approved/20190418.html>.



increases in energy bills, putting tremendous strain on continued operation.<sup>194</sup> However, the decision-maker's priority is New Jersey's clean energy future. PSEG signaled throughout the entire legislative and regulatory process that they will begin to shut down the plants if they are not awarded ZEC payments.<sup>195</sup> Regardless of whether the financial data showed that each plant is at risk of closure within three years without a material financial change, the plants were granted program eligibility because the potential practical consequences of denying eligibility prove to be too great.

“Some people rob you with a gun and others rob you with a pen,” stated Sierra Club Director Jeff Tittel in reference to the BPU's decision.<sup>196</sup> Despite months of process intended to legitimize the BPU's decision, the debate surrounding PSEG's financial need for ZEC payments feels unresolved. The law was drafted with somewhat ambiguous and undefined terms – “fuel diversity,” “resilience,” “material financial change,” – to give the BPU the discretion it needed to approve the applications without a definitive financial benchmark. Government regulation is generally thought to instill a process to which agencies can apply facts and come up with a correct outcome. New Jersey's implementation of its ZEC program demonstrates that regardless of what may be the correct, factual outcome pursuant to a specifically prescribed process, government regulators can use their discretion under the law to land on what they feel is the most acceptable

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<sup>194</sup> December 4th Hearing, *supra* note 92, at 121.

<sup>195</sup> Joseph F. Accardo Jr., *PSEG Nuclear Letter in Response to Comments Filed by Intervenors and Participants in the Proceedings*, (Feb. 14, 2019), [https://nj.pseg.com/zec\\_application\\_docs/ZEC%20Application%20Salem%20ZEC%20PSEG%20Nuclear%E2%80%99s%20Response%20To%20Comments%20Filed%20By%20Intervenors%20And%20Participants.pdf](https://nj.pseg.com/zec_application_docs/ZEC%20Application%20Salem%20ZEC%20PSEG%20Nuclear%E2%80%99s%20Response%20To%20Comments%20Filed%20By%20Intervenors%20And%20Participants.pdf).

<sup>196</sup> Jeannie O'Sullivan, *NJ OKs \$300M PSEG Nuclear Plant Ratepayer Subsidy*, LAW360 (Apr. 18, 2019), <https://advance.lexis.com/document/?pdmfid=1000516&crd=2eb3c945-1917-49b8-bc45-302198eeca34&pddocfullpath=%2Fshared%2Fdocument%2Flegalnews%2Furn%3AcontentItem%3A5VXF-K781-JNCK-21GR-00000-00&pddocid=urn%3AcontentItem%3A5VXF-K781-JNCK-21GR-00000-00&pdcontentcomponentid=234021&pdteaserkey=sr1&pdtab=allpods&comp=1yrLk&earg=sr1&prid=0ce2aa02-7d76-4a14-9a37-5256883deb04>.

outcome when assessing both specific situational facts *and* overarching legislative goals such as New Jersey’s clean energy targets.

#### IV. Connecticut’s Millstone Saga

A similar process to New Jersey’s ZEC program implementation recently played out in Connecticut. Connecticut’s process provides a good reference case based on the similarities to New Jersey: (i) each state operates within a deregulated market<sup>197</sup> and (ii) each process questioned whether plants in question are truly “at risk.” In July 2017, Connecticut’s governor issued an executive order requiring DEEP and PURA to review “the current and projected economic viability of the Millstone plants”, “the role of existing nuclear generating facilities . . . in helping Connecticut meet interim and long-term carbon and other emissions targets at the least cost”, “the best mechanisms to ensure continued progress toward those targets, and considerations for whether and, if so, how such mechanisms, including potential multistate collaborations, should be implemented, and [t]he compatibility of such mechanisms with competitive wholesale and retail electricity markets and their effect on ratepayers.”<sup>198</sup>

Before the issuance of this report, Connecticut passed legislation that was also aimed at providing economic relief to nuclear power plants struggling to remain competitive.<sup>199</sup> Located in Waterford, Connecticut, the two Millstone units are the only units operating in the state.<sup>200</sup> The bill allows Dominion Power, owner and operator of Millstone, to submit requests for proposals

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<sup>197</sup> Connecticut operates within ISO New England, which is an independent, not-for-profit corporation responsible for keeping electricity flowing across the six New England states. *About Us*, ISO NEW ENGLAND, <https://www.iso-ne.com/about> (last visited Feb. 15, 2019).

<sup>198</sup> *Resource Assessment Pursuant to Executive Order Number 59*,

<sup>199</sup> Peter Maloney, *Connecticut Passes Bill to Support Dominion’s Millstone Nuclear Plant*, UTILITYDIVE (Oct. 26, 2017), <https://www.utilitydive.com/news/connecticut-passes-bill-to-support-dominions-millstone-nuclear-plant/508280/>.

<sup>200</sup> *Id.*

(RFPs) for zero-carbon resources on behalf of Millstone, implying that the state will now value nuclear energy for attributes other than price. Bidders vying for Connecticut’s zero-carbon resources can bid in three separate categories: (1) existing resource, (2) new resource, and (3) at risk resource.<sup>201</sup> The State’s Public Utilities Regulatory Authority (PURA) determines whether a resource is “at risk” and thus eligible for subsidies in the form of “above-market rates,” also set by PURA.<sup>202</sup> Millstone’s permission to submit bid proposals was conditioned on the market study conducted pursuant to EO 59 finding that “it is in the public interest to allow Millstone to participate in the clean energy solicitation.”<sup>203</sup>

The report compiled by DEEP and PURA determined that the “Millstone nuclear units provide significant value to Connecticut” in regard to “fuel diversity, fuel security, and compliance with environmental goals.”<sup>204</sup> As a result, they concluded that DEEP should conduct a procurement for new and existing zero carbon generation facilities, but not until existing resources such as Millstone “demonstrate through the submission of credible financial data that they are at risk to retire.”<sup>205</sup> Implicit within this determination is that Dominion resisted disclosure of the financial data needed to do an at-risk analysis. Based on publicly available information, the report concluded that Millstone is economically viable through 2035.<sup>206</sup>

Once prompted by this report, Dominion disclosed the necessary data under a protective order to be reviewed PURA, DEEP and the Office of the Consumer Counsel.<sup>207</sup> After review, state

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<sup>201</sup> *Id.*

<sup>202</sup> Peter Maloney, *Connecticut Agencies Say Millstone “At Risk” as Dominion Seeks Boost in Clean Energy RFP*, UTILITYDIVE (Oct. 3, 2018), <https://www.utilitydive.com/news/connecticut-agencies-say-millstone-at-risk-as-dominion-seeks-boost-in-cle/538687/>.

<sup>203</sup> *See* Maloney, *supra*, note 199.

<sup>204</sup> Millstone Report, *supra*, note **Error! Bookmark not defined.** at 39-40.

<sup>205</sup> *Id.* at 41.

<sup>206</sup> *Id.* at 2.

<sup>207</sup> *Millstone Wins “At Risk” Status*, HARTFORD BUSINESS (Nov. 20, 2018) <http://www.hartfordbusiness.com/article/20181120/NEWS01/181129990/millstone-wins->.

regulators ruled that Millstone was at risk and could bid into the carbon-free procurement auction.<sup>208</sup> In early 2019, DEEP selected Millstone’s ten-year bid that includes almost fifty percent of Millstone’s output. Utilities are now “directed to negotiate for a price that reflects Dominion’s costs and risks to keep the plant during the at-risk period of the bid, from 2022 to 2029.”<sup>209</sup>

#### A. Comparing New Jersey and Connecticut

The goal of any regulatory process is, of course, to get it right. Each state invested significant time and money into studies and solicitation from the public about whether these nuclear units need financial assistance to avoid early retirement. Each power generation company eventually disclosed confidential financial data to regulators so that they might conduct an independent analysis based on a full record. The difference is that DEEP and the Office of Consumer Counsel recommended that Millstone be labeled “at risk.” In New Jersey, the intervenors believe that PSEG and Exelon did not need to be awarded any subsidy to remain operational.

In each process, at least one projection demonstrated that the plant may not be at risk of early retirement. In Connecticut, that projection was based on publicly available information. In New Jersey, the recommendation that the ZEC applications be rejected is based on the confidential financial information disclosed by PSEG. The question then becomes whether a BPU decision to award ZECs to Salem I, Salem II and Hope Creek would be palatable.

## II. Conclusion

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<sup>208</sup> *Id.*

<sup>209</sup> Julia Gheorghiu, Connecticut Moves to Preserve Millstone Nuclear Plant with 10-Year Power Deal, (Jan. 3, 2019), <https://www.utilitydive.com/news/connecticut-moves-to-preserve-millstone-nuclear-plant-with-10-year-power-de/545133/>.

The ZEC Act, in its findings and declarations, states that the Energy Master Plan (EMP) “requires significant revisions to ensure that 100 percent of the State’s electric energy needs are generated by clean energy sources by 2050.” The Energy Master Plan Committee is chaired by the BPU’s Chief of Staff, Grace Power. One of the main state employees deciding which nuclear power plants will be eligible and ultimately receive ZECs is also in charge of drawing up the revisions to the EMP. The BPU conducted a thorough investigation of the problem, holding hearings, soliciting public participation from all sectors, and seeking assistance from experienced professionals.

Emerging from the lengthy process is a fundamental disagreement about whether unit-specific subsidies have a place in a deregulated power market. The process itself serves as a way for the public to feel like the decision is in line with the legislative objective that PSEG doesn’t get paid unless it truly needs the money to operate. If the BPU truly decided based on PSEG’s financial need and determined that the plants did not need the money, the company would close the plants and foreclose the opportunity to meet the primary objective of the legislation – carbon emission reduction through a diverse generation mix that is capable of meeting high energy demand. Ultimately, the sense of urgency surrounding the need to reduce carbon emissions proved too strong for the BPU to reject the three applications.