



**STATE OF NEW JERSEY**  
**Board of Public Utilities**  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, New Jersey 08625-0350  
[www.nj.gov/bpu/](http://www.nj.gov/bpu/)

STATE ENERGY SERVICES

IN THE MATTER OF THE IMPLEMENTATION OF <u>L.</u>	)	ORDER FINALIZING THE
2018, <u>c.</u> 16 REGARDING THE ESTABLISHMENT OF A	)	FORWARD STEPS IN THE ZEC
ZERO EMISSION CERTIFICATE PROGRAM FOR	)	PROGRAM AND
ELIGIBLE NUCLEAR POWER PLANTS	)	MODIFICATIONS TO THE
	)	APPLICATION
And	)	DOCKET NO. EO18080899
	)	
APPLICATION FOR ZERO EMISSION CERTIFICATES	)	DOCKET NO. EO18121338
OF SALEM 1 NUCLEAR POWER PLANT	)	
	)	
APPLICATION FOR ZERO EMISSION CERTIFICATES	)	DOCKET NO. EO18121339
OF SALEM 2 NUCLEAR POWER PLANT	)	
	)	
APPLICATION FOR ZERO EMISSION CERTIFICATES	)	DOCKET NO. EO18121337
OF HOPE CREEK NUCLEAR POWER PLANT	)	

**Parties of Record:**

**Matthew Weissman, Esq.**, General State Regulatory Counsel, Public Service Electric and Gas Company  
**Jeanne J. Dworetzky, Esq.**, Assistant General Counsel, Exelon Generation Company, LLC  
**Stefanie A. Brand, Esq.**, Director, New Jersey Division of Rate Counsel  
**Jeffrey W. Mayes, Esq.**, General Counsel, Monitoring Analytics, LLC  
**Steven S. Goldenberg, Esq.**, Counsel, New Jersey Large Energy Users Coalition  
**Jennifer Hsia, Esq.**, Counsel, NRG Energy, Inc.  
**William Harla, Esq.**, Counsel, PJM Power Providers Group  
**Philip J. Passanante, Esq.**, for Atlantic City Electric Company  
**Robert H. Oostdyk, Jr., Esq.**, for Butler Power and Light Company  
**Mark A. Mader, Esq.**, Director, for Jersey Central Power & Light Company  
**Margaret Comes, Esq.**, Associate Counsel, for Rockland Electric Company

BY THE BOARD:

**I. BACKGROUND**

On May 23, 2018, Governor Phil Murphy signed into law L. 2018, c. 16 (C.48:3-87.3 to -87.7) (“Act”). The Act required the New Jersey Board of Public Utilities (“Board”) to create a program

and mechanism for the issuance of Zero Emission Certificates (“ZECs”), each of which represents the fuel diversity, air quality, and other environmental attributes of one megawatt-hour (“MWh”) of electricity generated by an eligible nuclear power plant selected by the Board to participate in the program. Under the program, certain eligible nuclear energy generators may be approved to provide ZECs for the state’s energy supply, which in turn will be purchased by New Jersey’s four investor-owned electric distribution companies, i.e., Atlantic City Electric Company (“ACE”), Jersey Central Power & Light Company (“JCP&L”), Public Service Electric and Gas Company (“PSE&G”), and Rockland Electric Company (“RECO”), and municipal electric distribution company Butler Electric Utility (“Butler”) (collectively, “EDCs”). The Act identified the basic steps required to establish this program, including program logistics, funding, costs, application, eligibility requirements, selection process, and the timeframes for meeting several undertakings or activities.

## II. PROCEDURAL HISTORY

On August 29, 2018, the Board approved an Order initiating the creation of the ZEC program.<sup>1</sup> In its November 19, 2018 Orders, the Board approved the ZEC applications, the program process, and the tariffs associated with collection of the funds.<sup>2</sup> By its December 18, 2018 Order, the Board approved the selection of Levitan & Associates, Inc. (“Levitan” or “LAI”) to serve as a consultant to Board Staff (“Staff”) and directed Staff to execute a contract for services.<sup>3</sup> With its February 27, 2019 Order, the Board approved the criteria established to rank eligible units for determination of how many of the eligible units would receive ZECs without exceeding the cap established in

---

<sup>1</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, BPU Docket No. EO18080899 (August 29, 2018).

<sup>2</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, BPU Docket No. EO18080899 (November 19, 2018) (Agenda Item 9A: Order Establishing the Program, Application, and Procedural Process; I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants and I/M/O the Application of Jersey Central Power and Light Company for Approval to Implement a Zero Emission Certificate (“ZEC”) Charge and Tariff Page(s) Related Thereto in Support of the ZEC Program Authorized by N.J.S.A. 48:3-87.3 et seq. and a Board Order Initiating the ZEC Program, BPU Docket Nos. EO18080899 & EO18091002 (November 19, 2018) (Agenda Item 9C); I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants and I/M/O the Application of Atlantic City Electric Company for Approval to Implement a Zero Emission Certificate (“ZEC”) Charge and Tariff Page(s) Related Thereto in Support of the ZEC Program Authorized by N.J.S.A. 48:3-87.3 et seq. and a Board Order Initiating the ZEC Program BPU Docket Nos. EO18080899 & EO18091003 (November 19, 2018) (Agenda Item 9D); I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants and I/M/O Public Service Electric and Gas Company’s Request for Approval of a Zero Emission Certificate Recovery Charge, BPU Docket Nos. EO18080899 & EO18091004 (November 19, 2018) (Agenda Item 9E); I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants and I/M/O Rockland Electric Company’s Filing for Review and Approval of the Zero Emission Certificate Recovery Charge, BPU Docket Nos. EO18080899 & EO18091005 (November 19, 2018) (Agenda Item 9F); I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants and I/M/O the Application of Butler Electric Utility for Approval to Implement a Zero Emission Certificate (“ZEC”) Charge and Tariff Page(s) Related Thereto in Support of the ZEC Program Authorized by N.J.S.A. 48:3-87.3 et seq. and a Board Order Initiating the ZEC Program, BPU Docket Nos. EO18080899 & EO18091018 (November 19, 2018) (Agenda Item 9G).

<sup>3</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, BPU Docket No. EO18080899 (December 18, 2018).

the Act.<sup>4</sup> On April 18, 2019, the Board determined that the Hope Creek, Salem 1, and Salem 2 plants were eligible for the ZEC program and that the applicant units would receive ZECs in accordance with the Act.<sup>5</sup> Consequently, the Board directed the EDCs to submit final tariffs consistent with the Board's Order, effective April 18, 2019. The Board further directed Staff to return to the Board by July 31, 2019 with recommendations on the program's continued and forward implementation.

In the July 10, 2019 Order, the Board authorized and directed Staff to present the ZEC price annually in August of each year (for the prior energy year) that selected units are eligible to receive ZECs. The Board accepted Staff's recommended ZEC pricing methodology for the initial "stub period" between April 18 and May 31, 2019. The Board also directed the EDCs to purchase the number of ZECs in accordance with the Act and the July 10, 2019 Order and to make payments to the generators by August 30 in the years 2019, 2020, 2021, and 2022; directed the owner(s) of each selected unit to submit a signed and certified notification of continued operations to the Board by July 30 of 2020 and 2021 during the initial eligibility period (June 1, 2019 – May 31, 2022) in accordance with the Act and the July 10, 2019 Order; directed the owner(s) of each selected unit to submit a personnel plan by April 18, 2021; and directed the owner(s) of each selected unit to submit to the Board by July 30 of each year that the unit is eligible to receive ZECs and a lay-off certification that no employees have been laid off by the unit except for reasons enumerated in the Act. Additionally, the Board agreed that the ten-year ZEC efficacy study requirement be revisited after completion of the first ZEC eligibility period.

The Board also recognized and agreed with Staff about the need for a stakeholder process to solicit additional comments, recommendations, and input on the following aspects of continued implementation of the ZEC program: (1) the timeline and submission schedule for applications for the second ZEC eligibility period (June 1, 2022 - May 31, 2025); (2) the basis on which and by how much the Board would modify the ZEC charge; (3) the definition of "full or near full" capacity; (4) revenue information that should be submitted to the Board annually by selected units, including what monies will qualify as revenues for fuel diversity, resilience, air quality, or other environmental attributes and by what methodology the Board would reduce the number of ZECs received by the selected unit(s); (5) logistics and parameters of the dry cask study; and (6) parameters of the ten-year study about the "efficacy" of the ZEC program and what information should be collected for the study. The Board therefore directed Staff to implement the stakeholder process pursuant to the schedule above and return to the Board with final recommendations in December 2019. In particular, the Board directed Staff to present to the Board recommendations for an updated ZEC application, as well as updated eligibility and ranking criteria, applicable to nuclear power plants seeking to demonstrate eligibility to the Board for the second eligibility period by April 30, 2021. At the December 20, 2019 meeting, the Board granted Staff an extension until March 31, 2020 to present final recommendations. At the March 27, 2020 meeting, the Board approved the Staff request to extend the final recommendations until May 31, 2020.

---

<sup>4</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, BPU Docket No. EO18080899 (February 27, 2018).

<sup>5</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; Application for Zero Emission Certificates of Salem 1 Nuclear Power Plant; Application for Zero Emission Certificates of Salem 2 Nuclear Power Plant; Application for Zero Emission Certificates of Hope Creek Nuclear Power Plant, BPU Docket Nos. EO18121338, EO18121339, & EO18121337 (April 18, 2019) (Order Determining the Eligibility of Hope Creek, Salem 1, and Salem 2 Nuclear Generators to Receive ZECs).

Staff initiated the stakeholder process as directed by the Board. On August 21, 2019, Staff published a notice regarding the ZEC forward requirements and a stakeholder meeting to be held on September 4, 2019 in New Brunswick, New Jersey for the purpose of soliciting comments on the above listed “going forward” ZEC criteria. The notice included multiple questions on the six specific sections of the Act enumerated above.

Approximately fifteen members of the public attended the meeting, and nine individuals spoke on behalf of interested entities on the record to offer input, including the New Jersey Division of Rate Counsel (“Rate Counsel”), PSEG Services, the New Jersey Energy Coalition, the Nuclear Energy Institute, ERM, Exelon Generation Company (“Exelon”), and Local 94.

Additionally, Staff secured an extension of the Levitan contract to assist in reviewing stakeholder comments and developing recommendations applicable to continued implementation of the ZEC program.

### III. PROCESS

As part of developing the forward ZEC program requirements, Staff held the above-mentioned public hearing and reviewed the written comments provided by interested parties.

In response to the questions posed by Staff, the Board received written comments from Rate Counsel, PSEG Nuclear, LLC (“PSEG-N”) and Exelon jointly, ERM, RECO, the NorthBridge Group, and PJM Power Providers (“P3”).

#### ERM

ERM argues that the implied social cost of carbon associated with the \$0.004/kWh charge under the ZEC Act – that is, \$20 per metric ton of carbon avoided – is substantially more cost-effective in providing carbon-free electricity to New Jersey consumers compared to the social cost of carbon implied through the design of New Jersey’s solar and offshore wind generation programs.<sup>6</sup> ERM argues further that \$20 per metric ton of carbon avoided is far below the documented social cost of carbon values in widely accepted scientific studies and well below the higher social cost of carbon that New Jersey investments warrant due to the higher risks and costs that climate change poses for the state.<sup>7</sup> In short, ERM views nuclear generation of electricity as one of the most significant and economical options for avoided greenhouse gas emissions at present and supports the continued retention of New Jersey’s nuclear electricity generation fleet.<sup>8</sup>

#### Northbridge

Citing declining actual energy prices and forward pricing, Northbridge states that the financial condition of the ZEC nuclear units has significantly deteriorated and that a future ZEC charge reduction by the Board is not warranted.<sup>9</sup> Northbridge also indicates that the 2018 pricing criteria should be used as the benchmark for any analysis regarding the ZEC charge modification, as is done with the Illinois and New York ZEC programs.<sup>10</sup>

---

<sup>6</sup> Comments of ERM, September 27, 2019, p. 3.

<sup>7</sup> Id. at 2.

<sup>8</sup> Id. at 1.

<sup>9</sup> Comments of NorthBridge Group, September 30, 2019, pp. 1-2.

<sup>10</sup> Id. at 4.

P3

P3 expresses concern about its lack of intervener status and that of other parties involved in the proceeding.<sup>11</sup> As part of the information due to the Board, P3 suggests that applicants should provide operation and maintenance costs, assumptions regarding future energy and capacity prices, assumptions about natural gas prices, and information regarding the return on investment that ZEC plants receive.<sup>12</sup> Regarding the timing of the second eligibility period process, P3 recommends that parties outside of the stakeholder process participate in the review and that the Board clearly define the roles and privileges of every party involved in the proceeding.<sup>13</sup> P3 recommends a transparent and longer process as the Board conducts its financial review of the applicant units, including the review of reasonable and prudent costs; recovery of going-forward costs from the PJM wholesale market, including “inflows and outflows” from incremental investments, plus the costs of “buying back market obligations to effectuate a retirement;” hedges and other forward sales that affect the profitability of the unit; the appropriate level of profitability of the ZEC plants; and definition and quantification of operational and market risk, as well as assessment of who bears the burden of the risks.<sup>14</sup> P3 recommends that the Board should ask for information as soon as possible and then ask for true-up information closer to each delivery year.<sup>15</sup>

RECO

For the second eligibility period, RECO comments that the Board should collect the same information as in the original ZEC proceeding and again utilize an outside expert to review applications.<sup>16</sup> RECO suggests that the Board make its determinations on applications at least three months prior to the beginning of the next eligibility period.<sup>17</sup> With regard to the potential reduction of the ZEC charge, RECO states that the Board should conduct annual proceedings with stakeholder intervention and a Board expert to review any and all revenues and incentives received by the unit(s) during the first eligibility period.<sup>18</sup> Additionally, RECO recommends that the Board re-examine the state’s clean energy needs as implementation of the Offshore Wind Economic Development Act (“OWEDA”) and the Clean Energy Act of 2018 proceed and consider how these programs and policies will affect the units and the ZEC program.<sup>19</sup> RECO states that data utilized for the ZEC charge analysis should include energy and capacity revenues of the units during the eligibility period, as well as any current or future incentives that the units may receive.<sup>20</sup> RECO further states that the ZEC charge analysis should project the direction of energy and capacity prices over a three-year period. Additionally, the physical condition of each plant should be examined to verify whether it will be able to continue production of the equivalent amount of energy going forward, as well as to judge if the unit is reaching its useful life.<sup>21</sup>

---

<sup>11</sup>Comments of PJM Power Providers Group, September 30, 2019, pp. 1-2.

<sup>12</sup> Id. at 6.

<sup>13</sup> Id. at 6-7.

<sup>14</sup> Id. at 3, 6-8, 10.

<sup>15</sup> Id. at 7.

<sup>16</sup> Comments of Rockland Electric Company, September 30, 2019, p. 3.

<sup>17</sup> Ibid.

<sup>18</sup> Id. at 4.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

RECO also states that the purpose of the ZEC charge is not to enrich the shareholders and thus that unaccounted-for market revenues from PJM, such as those for fuel security and carbon avoidance, should be considered double-payment and that the units should report quarterly any revenues such as these with an accompanying CEO certification.<sup>22</sup>

RECO believes that “full or near full capacity” should be defined as a unit’s average generation for the three years prior to its first ZEC payment and that the unit(s) should generate at or above this level.<sup>23</sup>

Regarding the ten-year study, RECO comments that the information that should be included in the study in order to examine the efficacy, as well as the costs and benefits of the ZEC program, are: energy and capacity revenues of the units during their eligibility periods; known and any future federal, state, and local incentives that the units may receive; the physical condition of the units and whether and for how long they will be able to continue to supply the state with clean energy; and the costs to operate and maintain the units.<sup>24</sup>

### Rate Counsel

For applications in the second eligibility period, Rate Counsel recommends that the Board require at least the same information as was filed in the first round of applications.<sup>25</sup> Rate Counsel suggests that discovery questions from the last round should be added to the application to streamline the process and that relevant parties should be permitted to intervene, serve discovery, and file comments.<sup>26</sup> Rate Counsel states that the Board should conduct evidentiary hearings if facts are disputed among the parties.<sup>27</sup> Rate Counsel comments that applications should be filed no later than November 1, 2020, that the Board could open a new docket in October 2020 and set a date in November for interventions, and that the Board must make determinations on these applications by April 1, 2021, per the Act.<sup>28</sup>

Regarding the ZEC charge, Rate Counsel states that the Board should take into consideration the rate increases from other programs such as offshore wind, energy efficiency, solar, and resiliency, in order to ensure that rates are just and reasonable and that ZEC subsidies are affordable to New Jersey ratepayers.<sup>29</sup> Rate Counsel asserts that the Board must conduct an independent analysis of each nuclear power plant’s actual need for “emissions avoidance benefits” in order to determine the proper rate of a ZEC subsidy, with no presumption that the \$0.004 per kWh charge is required.<sup>30</sup> Specifically, Rate Counsel suggests that the Board should look at each unit’s actual and projected revenues and compare them to the unit’s avoidable costs.<sup>31</sup> Rate Counsel argues that, if a unit is profitable, no subsidy is necessary. Rate Counsel calls for a transparent process in which Rate Counsel, the IMM, and, to the extent possible, PJM

---

<sup>22</sup> Id. at 2.

<sup>23</sup> Id. at 2-3.

<sup>24</sup> Id. at 5.

<sup>25</sup> Comments of the New Jersey Division of Rate Counsel, September 30, 2019, p. 8.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Id. at 9.

<sup>30</sup> Id. at 10.

<sup>31</sup> Ibid.

should all be able to review and comment on the revenue and cost data provided by the applicants, who should certify and clearly indicate the source of all data.<sup>32</sup>

For the full or near full capacity question, Rate Counsel states that the Board should utilize the average of the net megawatt hours generated in the last three years for each unit and require energy production within 10% of that number, with no exceptions other than those provided in the statute for maintenance and refueling.<sup>33</sup>

Regarding double payments, Rate Counsel states that revenues received based upon the attributes identified by the Act may not be easily quantified and that the Board will likely require an expert to review market results, model alternate market results, and assign a value to each of the market revenues received.<sup>34</sup> Rate Counsel recommends that the Board consider Regional Greenhouse Gas Initiative (“RGGI”) funds as double payments, based on quantification of the market benefit that nuclear power plants will receive as a result of the allowances fossil-fueled power plants will pay under the RGGI.<sup>35</sup> Rate Counsel also recommends that the Board consider many of the proposals before PJM and FERC as double payments.<sup>36</sup> For instance, Rate Counsel argues that, if a Minimum Offer Price Rule (“MOPR”) is adopted and the clearing price for the PJM capacity market is raised, and if the units clear the minimum price threshold, the units will receive more capacity revenue than they would have received if not for the MOPR.<sup>37</sup> Rate Counsel argues that this discrepancy should be counted as a double payment.<sup>38</sup> Rate Counsel also states that increased revenues resulting from other PJM and FERC mechanisms, such as energy price formation, where the increase is based upon the attributes identified by the Act, should be considered double payments.<sup>39</sup> Rate Counsel argues that the Board should quantify the value of higher revenues earned by nuclear units as a result of market changes designed to produce higher market revenues for generation units exhibiting the attributes identified by the Act and then use these values in the calculation of double payments.<sup>40</sup> Rate Counsel suggests that the Board should require the units to provide detailed information on all market revenues received, even if outside of PJM, on April 1 of each year, allowing for ten months of actual market revenues and with two months of projected data, with a true-up submitted by June 15.<sup>41</sup> Rate Counsel calls for this information to be shared with Rate Counsel, PJM, and the Independent Market Monitor (“IMM”).<sup>42</sup>

Rate Counsel suggests that the dry cask study should examine alternatives to dry cask storage of spent nuclear fuel, with the goal of using a process and personnel with the proven ability to store spent nuclear fuel in a safe and cost effective way.<sup>43</sup>

For the ten-year study, Rate Counsel recommends that the Board review the full books of each plant receiving a subsidy to analyze how the subsidy was used and if the unit would have been

---

<sup>32</sup> Id. at 10-11.

<sup>33</sup> Id. at 7.

<sup>34</sup> Id. at 3.

<sup>35</sup> Ibid.

<sup>36</sup> Id. at 3-4.

<sup>37</sup> Id. at 4.

<sup>38</sup> Ibid.

<sup>39</sup> Id. at 4-5.

<sup>40</sup> Id. at 5.

<sup>41</sup> Id. at 5-6.

<sup>42</sup> Id. at 5.

<sup>43</sup> Id. at 12.

profitable absent the subsidy.<sup>44</sup> In particular, Rate Counsel suggests that this analysis will include determination of the return on equity (“ROE”) for each unit with the subsidy and what the ROE would have been absent the subsidy, as well as assessment of whether capital improvements were necessary or optional and if that work would have been made without the subsidy.<sup>45</sup> As part of the study’s cost benefit analysis, Rate Counsel recommends that the Board consider not only the cost of the subsidies but the full costs to ratepayers and the state, including the market impacts of keeping the plants operational.<sup>46</sup>

### PSEG-N and Exelon

PSEG-N and Exelon (collectively, “ZEC Recipients”) urged the Board to consider the matters identified in the August 2019 notice in the context of the Act and its design to preserve nuclear plants whose closure would negatively and significantly impact New Jersey.<sup>47</sup> They argue that the ZEC charge should be based on the social cost of carbon and other air pollutants, which supports retention of the current ZEC charge, and the cost effectiveness of the nuclear units in reducing New Jersey carbon emissions.<sup>48</sup> They state that the record created by the selected nuclear plants provides ample grounds to retain the ZEC subsidy at its current level.<sup>49</sup> ZEC Recipients also assert that Rate Counsel is erroneous in its argument that the Board must conduct a cost-of-service analysis in keeping with traditional ratemaking principles and that Rate Counsel fails to appreciate that the Act does not contemplate such an analysis in connection with the ZEC charge.<sup>50</sup> ZEC Recipients assert that Rate Counsel also errs in suggesting that the Board should consider the ZEC charge along with all other rate increases because such an approach would be inconsistent with the Act’s specific charge to award ZECs if needed to preserve nuclear generators.<sup>51</sup>

Regarding forward ZEC methods, ZEC Recipients state that the Board should concurrently evaluate the ZEC charge and the second round applications and that any Board determinations must be completed no later than April 1, 2021.<sup>52</sup> ZEC Recipients suggest a more streamlined application process based on “lessons learned” from the first round, including modifications to the application, such as removing the requirement to produce copies of hedges and eliminating value-in-use information, as well as electronic filing of applications rather than hard copies.<sup>53</sup> They also suggest a more extended application review process compared to the first round of applications, including a public hearing for the release and review of Staff’s preliminary findings on the applications.<sup>54</sup> They suggest that the Board take more opportunities to engage applicants and participants throughout the process and that applicants and participants be allowed to review and rebut any Staff recommendations to avoid the types of errors made during the first round.<sup>55</sup>

---

<sup>44</sup> Id. at 11.

<sup>45</sup> Ibid.

<sup>46</sup> Id. at 11-12.

<sup>47</sup> Comments of PSEG Nuclear, LLC and Exelon Generation Company, LLP, September 30, 2019, pp. 2-7.

<sup>48</sup> Id. at 3-7.

<sup>49</sup> Id. at 7-9.

<sup>50</sup> Id. at 9.

<sup>51</sup> Ibid.

<sup>52</sup> Id. at 10-11.

<sup>53</sup> Id. at 11-13.

<sup>54</sup> Id. at 11-12.

<sup>55</sup> Id. at 11.



For the full or near full capacity requirement, ZEC Recipients propose the following definition: “The Selected NPP should operate at its maximum output with the exception of reduced output or outages associated with equipment maintenance and/or repair that a prudent owner or operator of a NPP would undertake, NRC License limitations, fuel limitations (for example rod pattern adjustments, end of operating cycle fuel management, and coast downs), environmental and atmospheric conditions, transmission constraints, temporary de-rates or energy output reductions as directed by PJM Interconnection, L.L.C., and other events beyond its control (including but not limited to acts of God, flood, drought, earthquake, storm, fire, lightning, epidemic, war, riot, labor dispute, labor or material shortage, sabotage, or explosion).”<sup>56</sup>

Regarding double payments, ZEC Recipients believe that only payments designed and intended to promote fuel diversity, resilience, air quality, or other environmental goals should be considered and that revenues from cap-and-trade and carbon tax programs or from proposed Department of Energy payments for resiliency would be included.<sup>57</sup> They do not believe that changes to the design of energy and capacity markets that are intended to improve price formation generally for the entire market should be considered double payments under the Act.<sup>58</sup> ZEC Recipients also state that, even if something is considered a double payment, it should not be deducted if it was included in expected energy market revenues when an application was submitted, such as was the case when they included in their forecasts energy market price impacts associated with New Jersey’s intention to rejoin the RGGI.<sup>59</sup> ZEC Recipients recommend an opportunity for the ZEC Recipients and parties to provide written comments on the Board’s annual double payments findings.<sup>60</sup>

Regarding dry cask storage, ZEC Recipients state that the study should focus on long term dry cask storage strategy and take account of the license life of the plants, the Nuclear Regulatory Commission’s (“NRC’s”) Independent Spent Fuel Storage Installation (“ISFSI”) licensing requirements, and the casks.<sup>61</sup> More specifically, ZEC Recipients suggest that the study should review the strategies for storing spent fuel in the spent fuel pools, the rate of transfer to dry casks, and the storage in dry casks at the ISFSI, considering licensing and legal requirements, as well as the results of previous studies/reports.<sup>62</sup> They state that the study should also evaluate site procedures and processes for loading and transporting casks to the ISFSI with respect to operational/staffing costs (including security), potential industrial safety issues, and radiological safety considerations.<sup>63</sup> They recommend that the study further identify any opportunities for cost beneficial improvements in safety and/or significant reductions in costs.<sup>64</sup>

For the ten-year study, ZEC Recipients recommend that the study focus on the achievement of the Act’s objectives – including the avoidance of carbon emissions, the achievement of the state’s environmental goals, and the extent to which the operation of nuclear power plants resulted in savings from avoiding power disruptions and price spikes – and assess whether the ZEC program was cost-effective compared to other available options.<sup>65</sup>

---

<sup>56</sup> Id. at 18-19.

<sup>57</sup> Id. at 14.

<sup>58</sup> Ibid.

<sup>59</sup> Ibid.

<sup>60</sup> Id. at 15.

<sup>61</sup> Id. at 17.

<sup>62</sup> Ibid.

<sup>63</sup> Ibid.

<sup>64</sup> Id. at 18.

<sup>65</sup> Id. at 19.

#### IV. ZEC PROGRAM RECOMMENDATIONS

After reviewing and considering the input provided by stakeholders, Staff has developed the following recommendations for the ZEC process and program requirements going forward.

Second Eligibility Period Process: Pursuant to N.J.S.A. 48:3-87.5(h)(2), no later than thirteen months prior to the conclusion of the initial eligibility period and no later than thirteen months prior to the conclusion of each three energy-year eligibility period thereafter, a nuclear power plant may demonstrate its eligibility to the Board, and the Board may certify the nuclear power plant's eligibility to receive ZECs for additional eligibility periods of three energy years, consistent with the provisions of the Act. The initial eligibility period began on June 1, 2019 and concludes at the end of Energy Year 2022 on May 31, 2022. Therefore, the Board may certify units' eligibility by April 30, 2021 for the next three-year eligibility period, which begins on June 1, 2022 and concludes on May 31, 2025.

Staff recommends the following general timeline, including discovery, preliminary findings, public hearings, written comments, and evidentiary hearings, with more specific dates to be established in a forthcoming procedural schedule to be issued by Staff:

- May/June 2020 – Staff issues application requirements for the second eligibility period for public comment
- June/July 2020 – Staff issues final application requirements for the second eligibility period
- June/July 2020 – Applicants submit notices of intent to file
- September 2020 – Applications due
- September 2020 – Requests for intervention/participation due
- October 2020 – Board makes determinations on intervention and participation
- October – November 2020 – Discovery and written comments on applications
- December 2020 – Staff issues preliminary findings on eligibility and the ZEC charge
- January 2021 – Written comments on Staff's preliminary findings
- January 2021 – Public hearings on applications
- January – February 2021 – Final discovery and written comments on applications
- February 2021 – Evidentiary hearings
- March 2021 – Initial and reply briefs

For subsequent eligibility periods, applications will be accepted and addressed along a correspondingly similar timeline.

ZEC Charge Modification: Pursuant to N.J.S.A. 48:3-87.5(j)(3), starting in the second three-year eligibility period and for each subsequent three-year eligibility period thereafter, the Board may reduce the non-bypassable, irrevocable, per kilowatt-hour charge (“ZEC charge”) imposed on electric public utilities’ retail distribution customers pursuant to N.J.S.A. 48:3-87.5(j)(1) if the Board determines that the charge will be sufficient to prevent the retirement of eligible nuclear power plants. The Act also indicates that, if the Board reduces the per kilowatt-hour charge, such determination must be made no later than thirteen months prior to the start of the next eligibility period. Any reduction shall apply to the next eligibility period only.

Staff reads the Act to require the Board to decide whether to reduce the ZEC charge by April 30, 2021 for the next three-year eligibility period. The analysis for modification of the ZEC charge will be based on forward looking projections relevant to the next eligibility period and on whether a unit is projected to cover its costs and risks or its risk adjusted cost of capital, as defined in the Act. Staff recommends that the Board should retain a qualified consultant to assist Staff with this analysis.

Staff recommends that Staff prepare a recommendation on the ZEC charge, in addition to its eligibility recommendations, as part of its preliminary findings and then final recommendations to the Board. Stakeholders may make comments to the Board according to the procedural schedule to be established.

Definition of Full or Near Full Capacity: Pursuant to N.J.S.A. 48:3-87.5(h)(3), the selected nuclear unit(s) must annually “certify to the [B]oard that it will continue operations at full or near full capacity for the duration of the period of its eligibility to receive ZECs, except with respect to nuclear power plant shutdowns for necessary maintenance and refueling.”

Staff recommends that the Board accept in part the definition of full or near full capacity proposed by PSEG-N and Exelon as noted in their comments and require the following:

The selected nuclear power plant should operate at its maximum output, with the exception of reduced output or outages associated with equipment maintenance and/or repair that a prudent owner or operator of a nuclear power plant would undertake, NRC license limitations, fuel limitations (for example, rod pattern adjustments, end of operating cycle fuel management, and coast downs), any PJM imposed constraints, and other events beyond its reasonable control that are classified as Force Majeure events.

In combination with this definition, Staff recommends that the Board allow for a maximum 5% variance below a selected nuclear power plant’s average net generation (MWh) for the prior three-year period.<sup>66</sup> This requirement assures ratepayers that the plants will continue operating at comparable levels and prevent any long-term reduction in the amount of carbon-free power produced.

The unit’s actual energy year generation, including a detailed accounting of allowable exceptions, as set forth in the definition above, must be provided to the Board by thirty (30) days after the

---

<sup>66</sup> The nuclear units selected for the first eligibility period operated at an average of more than 85% of maximum capacity over the three years prior to their application to the ZEC program.

close of each energy year and should include outage information as reported in the North American Electric Reliability Corporation's ("NERC's") Generating Availability Data System. Any failure to meet the "full or near full capacity" requirement will require a detailed explanation by the unit owner(s) submitted to the Board at the same time.

Annual Revenue Review: Pursuant to N.J.S.A. 48:3-87.5(e)(4) and N.J.S.A. 48:3-87.5(i)(3), the Board is required to annually review the dollar amount received, in the form of any direct or indirect payment or credit, by the unit(s) for fuel diversity, resilience, air quality, or other environmental attributes, under a law, rule, regulation, tariff, order, or other action of this State or any other state, or a federal law, rule, regulation, order, tariff, or other action, or a regional compact.

Staff recommends that this review require all financial documents pertaining to payments, credits, and revenues received by the unit(s) for generation in the prior energy year to be submitted by the unit owner(s). Additionally, the application data pertaining to this information must be updated or supplemented from the application "forecast" to actual values. This will include:

- Federal and state subsidies, and state and local tax incentives;
- All PJM market revenue, including an analysis of energy market revenue attributable to New Jersey's entrance into the RGGI;
- Any other market or direct sale revenue;
- Going forward costs from wholesale markets;
- Costs of buying back market obligations to effectuate a retirement; and
- Any forward sales – including bilateral contracts for output and direct hedges and indirect hedges entered into by any marketing affiliate in both the natural gas or energy markets – that affect the profitability of or are based on the operations of a unit, including any intrinsic or extrinsic value assigned to the continued operation of the unit, i.e., the value of the asset as compared to the strike price (exercise price) and volatility.

Staff will then determine which of these qualify as the "dollar amount received" for "fuel diversity, resilience, air quality, or other environmental attributes," in accordance with N.J.S.A. 48:3-87.5(i)(3). Staff will identify any funds found to be duplicative to the Board and recommend that an equivalent number of ZECs, representing the real costs received in duplicate, be subtracted from the prior energy year payment obligation to the unit owners.

Selected units in the initial eligibility period should submit this information to the Board thirty (30) days after the closing of each energy year, by June 30. Staff will submit its preliminary findings for public comment by December of that year and will present its final findings to the Board for consideration by February of the following year, which is a timeline designed to work in parallel with the eligibility review that occurs every three years.

Dry Cask Study: Pursuant to N.J.S.A. 48:3-87.5(m), within two years of receiving ZECs, i.e., by April 18, 2021, the owner of a unit selected to receive ZECs shall conduct a study and prepare a written report in cooperation with selected experts to determine the optimal use of dry cask storage of spent nuclear fuel on site. The study shall consider environmental impacts, worker safety, neighborhood safety, and cost impacts.

The primary goals for dry cask storage are for the system to be safe and effective. The NRC regulates the current spent fuel storage system through its Independent Spent Fuel Storage Installation ("ISFSI") licensing and oversight requirements in Chapter I of Title 10 of the Code of Federal Regulations and regulatory guidance documents. The New Jersey Department of

Environmental Protection's ("NJDEP") Bureau of Nuclear Engineering ("BNE") also provides oversight, including through participation in NRC inspections and through environmental surveillance and monitoring, of the ISFSI facility for New Jersey's nuclear power plants.

Staff recommends that the owners of the nuclear units currently receiving ZECs engage a consultant qualified to review the existing dry cask storage system in place for each unit, analyze any improvements to methods and procedures developed since construction and utilization of the ISFSI facility, and make recommendations for future improvements, including regarding environmental impacts, worker safety, neighborhood safety, and cost impacts. The study should review relevant NRC licenses and inspection reports, applicable licensing and legal requirements, BNE activities, the response of unit owners to any inspection findings associated with dry cask storage, and the license lives of the plants, the ISFSI, and the casks. Additionally, the study should review the unit's strategies for storing spent fuel in spent fuel pools, the rate of transfer of spent fuel to dry casks, site procedures and processes for loading and transporting dry casks to the ISFSI, operational and staffing costs, qualifications of operations and personnel involved, potential industrial safety issues, and radiological safety considerations. The owners should consult with the BNE for additional information and regarding the study scope, as well as a plan for updates and informational meetings during the study process. The final study should be submitted to the NJDEP and the Board by the legislatively mandated date.

Ten Year Program Evaluation: As required by N.J.S.A. 48:3-87.6, the Board shall perform a study within ten years after May 23, 2018 on the efficacy of the ZEC program and report its findings to the Governor and Legislature. In conducting the study, the Board shall evaluate the program's effect on preventing the premature retirement of nuclear power plants, effect on the air quality and environment in the state, and contribution to a more reliable energy supply by assuring fuel diversity. The study shall also evaluate the program's benefits and costs to ratepayers. The written report shall (1) summarize the study and analysis; (2) discuss and quantify the potential benefits and costs associated with the program; (3) recommend any changes to the program or whether it could continue; and (4) recommend whether the program should be expanded to include other technologies.

Staff foresees the study including a full review of the financial performance of each unit, including actual revenues and costs, as well as the profitability of the unit during the ten-year period, and including consideration of what the unit's profitability would have been without ZECs; analysis of full benefits and costs, including energy and non-energy benefits and costs; and program recommendations based on these analyses. Staff recommends that the parameters of this study be revisited after completion of the first eligibility period. In this way, actual data, yearly analyses required under the Act, and program issues, if any, can be incorporated into the study requirements.

ZEC Application: The initial ZEC application was developed to ensure that any possible information required to perform the eligibility review and ranking of applicant units was available. However, during the review process and the information requests by intervening parties, Staff recognized that the application required modification to both include such data requests and eliminate superfluous information gathered in the initial application window. As such, Staff recommends the revised application (attached as Appendix A) for the ZEC program going forward. This revised application will be submitted for public comment prior to its finalization at a date to be determined.

Information requests added to the application include, but are not limited to, cash flow comparisons, data timeframes, calculations of risks, worksheets and backup calculations for revenue, anticipated replacement generation if units retire, and a Q&A sheet for questions that arose during the first application round. Information and data requests removed from the application include, but are not limited to, copies of reports to third parties and superfluous documentation, which were replaced with the submission of lists and the caveat that source documents be made available upon request.

## V. DISCUSSION AND FINDINGS

The Board **DETERMINES** that the stakeholder process conducted by Staff was sufficient to inform the ZEC program policies going forward.

The Board **FINDS** that Staff's modifications to the ZEC Application are appropriate and **APPROVES** them for the second eligibility period.

The Board **DIRECTS** Staff to initiate the ZEC Application for the second eligibility period consistent with the schedule stated above and to present a report to the Board prior to April 30, 2021 on application eligibility for determinations by the Board. In addition, the Board **WAIVES** the standard requirements for hard copies and directs applicants to file electronically.

The Board **AGREES** that the ZEC charge modification provision of the Act should be initiated using forecast data for the upcoming eligibility period, with the required criteria outlined above by Staff. The Board **DIRECTS** Staff to hire a consultant to aid in the analysis and that the analysis method be consistent with the ZEC pricing and financial determinations outlined in the Act. The Board **DIRECTS** Staff to initiate the analysis and make a formal recommendation to the Board along with the eligibility recommendations prior to April 30, 2021.

The Board **ADOPTS** Staff's recommendation on the definition of "full or near full" capacity generation requirements per the Act. Therefore, the Board **DIRECTS** ZEC Recipients to maintain the defined level of generation to continue to receive ZECs, subject to allowed variances.

The Board **ACCEPTS** and **ADOPTS** Staff's recommendations for the data requirements and the procedure regarding an annual review of the unit revenues for duplication of payments related to resilience, fuel diversity, air quality, or other environmental attributes. The Board **DIRECTS** Staff to present any payments found during the annual review that qualify as "double payments" to the Board for a formal determination according to the schedule above. Accordingly, the Board **DIRECTS** ZEC Recipients to file the required information and data thirty (30) days after the closing of each energy year, by June 30.

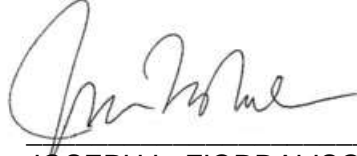
The Board **ACCEPTS** and **ADOPTS** Staff's recommendations regarding the dry cask study requirements. The Board hereby **ORDERS** ZEC Recipients to perform the study in accordance with the above recommendations and input from NJDEP.

Regarding the ten-year study, the Board **ACCEPTS** Staff's recommended inclusions to the study. The Board also **AFFIRMS** its decision in the July 10, 2019 Order that the study parameters will be revisited after completion of the first eligibility period.

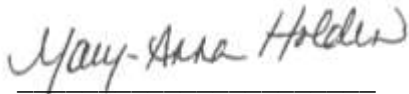
This Order shall be effective on May 30, 2020.

DATED: May 20, 2020

BOARD OF PUBLIC UTILITIES  
BY:



JOSEPH L. FIORDALISO  
PRESIDENT



MARY-ANNA HOLDEN  
COMMISSIONER



DIANNE SOLOMON  
COMMISSIONER

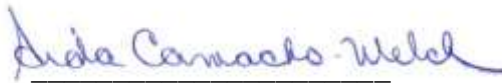


UPENDRA J. CHIVUKULA  
COMMISSIONER



ROBERT M. GORDON  
COMMISSIONER

ATTEST:



AIDA CAMACHO-WELCH  
SECRETARY

**In the Matter of the Implementation of L. 2018, c. 16 Regarding the Establishment of a  
Zero Emission Certificate Program for Eligible Nuclear Power Plants**

**AND**

**Application for Zero Emissions Certificates of Salem 1 Nuclear Power Plant**

**Application for Zero Emissions Certificates of Salem 2 Nuclear Power Plant**

**Application for Zero Emissions Certificates of Hope Creek Nuclear Power Plant**

**BPU DOCKET NOS. EO18080899,  
EO18121338, EO18121339, & EO18121337**

**SERVICE LIST**

**Division of Rate Counsel**

Post Office Box 003  
Trenton, NJ 08625-0003

Stefanie A. Brand, Esq., Director  
[sbrand@rpa.nj.gov](mailto:sbrand@rpa.nj.gov)

Brian O. Lipman, Esq., Litigation Manager  
[blipman@rpa.nj.gov](mailto:blipman@rpa.nj.gov)

Felicia Thomas-Friel, Esq.  
Managing Attorney – Gas  
[ftthomas@rpa.nj.gov](mailto:ftthomas@rpa.nj.gov)

Ami Morita, Esq.  
Assistant Deputy Rate Counsel  
[amorita@rpa.nj.gov](mailto:amorita@rpa.nj.gov)

Sarah H. Steindel, Esq.  
Assistant Deputy Rate Counsel  
[ssteinde@rpa.nj.gov](mailto:ssteinde@rpa.nj.gov)

Debora Layugan, Paralegal  
[dlayugan@rpa.nj.gov](mailto:dlayugan@rpa.nj.gov)

Celeste Clark, Legal Secretary  
[cclark@rpa.nj.gov](mailto:cclark@rpa.nj.gov)

**Rate Counsel Consultants**

Andrea Crane  
The Columbia Group  
2805 East Oakland Park Blvd, #401  
Ft. Lauderdale, FL 33306  
[ctcolumbia@aol.com](mailto:ctcolumbia@aol.com)

Max Chang  
Bob Fagan  
Synapse Energy Economics, Inc.  
485 Massachusetts Ave., Suite 2  
Cambridge, MA 02139  
[mchang@synapse-energy.com](mailto:mchang@synapse-energy.com)  
[rfagan@synapse-energy.com](mailto:rfagan@synapse-energy.com)

**Division of Law**

Division of Law  
Public Utilities Section  
R.J. Hughes Justice Complex, 7<sup>th</sup> Floor West  
25 Market Street, P.O. Box 112  
Trenton, NJ 08625

David Apy, Assistant Attorney General  
[david.apy@law.njoag.gov](mailto:david.apy@law.njoag.gov)

Daren Eppley, Deputy Attorney General  
Section Chief  
[daren.eppley@law.njoag.gov](mailto:daren.eppley@law.njoag.gov)



**NJ Department of Law and Public Safety**

Richard J. Hughes Justice Complex  
Public Utilities Section  
25 Market Street, P.O. Box 112  
Trenton, NJ 08625

Pamela Owen, Deputy Attorney General  
Assistant Section Chief  
[pamela.owen@law.njoag.gov](mailto:pamela.owen@law.njoag.gov)

Alex Moreau, Deputy Attorney General  
[alex.moreau@law.njoag.gov](mailto:alex.moreau@law.njoag.gov)

**Board of Public Utilities**

Post Office Box 350  
Trenton, NJ 08625-0350

Aida Camacho-Welch, Secretary of the Board  
[board.secretary@bpu.nj.gov](mailto:board.secretary@bpu.nj.gov)

Paul Flanagan, Executive Director  
[paul.flanagan@bpu.nj.gov](mailto:paul.flanagan@bpu.nj.gov)

Benjamin Witherell, Chief Economist  
[benjamin.witherell@bpu.nj.gov](mailto:benjamin.witherell@bpu.nj.gov)

Carol Artale, Deputy General Counsel  
[noreen.giblin@bpu.nj.gov](mailto:noreen.giblin@bpu.nj.gov)

Stacy Ho Richardson, Esq., Legal Specialist  
[stacy.richardson@bpu.nj.gov](mailto:stacy.richardson@bpu.nj.gov)

Thomas Walker, Deputy Director  
Division of Reliability and Security  
[thomas.walker@bpu.nj.gov](mailto:thomas.walker@bpu.nj.gov)

Stacy Peterson, Director, Division of Energy  
[stacy.peterson@bpu.nj.gov](mailto:stacy.peterson@bpu.nj.gov)

Kevin Nedza  
Director of Special Projects  
[kevin.nedza@bpu.nj.gov](mailto:kevin.nedza@bpu.nj.gov)

Charles Gurkas, Paralegal  
[charles.gurkas@bpu.nj.gov](mailto:charles.gurkas@bpu.nj.gov)

**Independent Market Monitor for PJM**

Jeffrey W. Mayes  
General Counsel  
Monitoring Analytics, LLC  
2621 Van Buren Avenue, Suite 160  
Eagleville, PA 19403  
[jeffrey.mayes@monitoringanalytics.com](mailto:jeffrey.mayes@monitoringanalytics.com)

Michael J. Ash, Esq.  
Attorney for Monitoring Analytics, LLC  
Carlin & Ward, P.C.  
P.O. Box 751  
25A Vreeland Road  
Florham Park, NJ 07932  
[michael.ash@carlinward.com](mailto:michael.ash@carlinward.com)

**Butler Electric Utility**

Robert H. Oostdyk, Jr., Esq.  
Murphy McKeon, P.C.  
51 Route 23 South  
P.O. Box 70  
Riverdale, NJ 07457  
[roostdyk@murphymckeonlaw.com](mailto:roostdyk@murphymckeonlaw.com)

Jason Lampmann  
Borough Administrator  
One Ace Road  
Butler, NJ 07405  
[jlampmann@butlerborough.com](mailto:jlampmann@butlerborough.com)

**Jersey Central Power & Light**

300 Madison Avenue  
PO Box 1911  
Morristown, NJ 07962-1911

Mark A. Mader  
Director, Rates & Regulatory Affairs – NJ  
[mamader@firstenergycorp.com](mailto:mamader@firstenergycorp.com)

Tom Donadio  
[tdonadio@firstenergycorp.com](mailto:tdonadio@firstenergycorp.com)

Sally Cheong  
[scheong@firstenergycorp.com](mailto:scheong@firstenergycorp.com)

**Exelon Generation Company, LLC**

Jeanne J. Dworetzky, Esq.  
Assistant General Counsel  
101 Constitution Avenue, NW, Suite 400E  
Washington, DC 20001  
[jeanne.dworetzky@exeloncorp.com](mailto:jeanne.dworetzky@exeloncorp.com)

James B. Blackburn IV, Esq.  
Day Pitney LLP  
Counsel to Exelon Generation Company, LLC  
1100 New York Avenue NW  
Washington, DC 20005  
[jblackburn@daypitney.com](mailto:jblackburn@daypitney.com)

Florence K.S. Davis, Esq.  
Day Pitney LLP  
Counsel to Exelon Generation Company, LLC  
242 Trumbull Street  
Hartford, CT 06103  
[fkdavis@daypitney.com](mailto:fkdavis@daypitney.com)

Naju R. Lathia, Esq.  
Day Pitney LLP  
Counsel to Exelon Generation Company, LLC  
One Jefferson Road  
Parsippany, NJ 07054-2891  
[nlathia@daypitney.com](mailto:nlathia@daypitney.com)

**Atlantic City Electric Company**

500 N. Wakefield Drive  
PO Box 6066  
Newark, DE 19714-6066

Philip J. Passanante, Esq.  
Mailstop 92DC42  
[philip.passanante@pepcoholdings.com](mailto:philip.passanante@pepcoholdings.com)

Susan DeVito  
Director, Pricing and Regulatory Services  
Mailstop 92DC56  
[susan.devito@pepcoholdings.com](mailto:susan.devito@pepcoholdings.com)

Gregory Eisenstark  
Windels Marx Lane & Mittendorf, LLP  
120 Albany Street Plaza  
New Brunswick, NJ 08901  
[geisenstark@windelsmarx.com](mailto:geisenstark@windelsmarx.com)

**Rockland Electric Company**

4 Irving Place  
New York, NY 10003

Margaret Comes, Esq.  
Associate Counsel  
[comesm@coned.com](mailto:comesm@coned.com)

William Atzl  
Director – Rate Engineering  
[atzlw@coned.com](mailto:atzlw@coned.com)

Cheryl Ruggiero  
[ruggieroc@coned.com](mailto:ruggieroc@coned.com)

**New Jersey Large Energy Users Coalition**

Steven S. Goldenberg, Esq.  
Giordano, Halleran & Ciesla, P.C.  
125 Half Mile Road, Suite 300  
Red Bank, NJ 07701-6777  
[sgoldenberg@ghclaw.com](mailto:sgoldenberg@ghclaw.com)

Paul F. Forshay, Esq.  
Eversheds Sutherland (US) LLP  
700 Sixth Street, N.W., Suite 700  
Washington, D.C. 20001-3980  
[paulforshay@eversheds-sutherland.com](mailto:paulforshay@eversheds-sutherland.com)

**NRG Energy, Inc.**

Jennifer Hsia, Esq.  
Counsel  
804 Carnegie Center  
Princeton, NJ 08540  
[jennifer.hsia@nrg.com](mailto:jennifer.hsia@nrg.com)

**Public Service Electric and Gas Company**

PSEG Services Corporation  
80 Park Plaza, T5G  
PO Box 570  
Newark, NJ 07102-4194

Joseph F. Accardo, Jr., Esq.  
Deputy General Counsel and  
Chief Regulatory Officer  
[joseph.accardojr@pseg.com](mailto:joseph.accardojr@pseg.com)

Matthew Weissman, Esq.  
General State Regulatory Counsel  
[matthew.weissman@pseg.com](mailto:matthew.weissman@pseg.com)

Justin B. Incardone, Esq.  
Associate General Regulatory Counsel  
[justin.incardone@pseg.com](mailto:justin.incardone@pseg.com)

Stephen Swetz  
Senior Director, Corporate Rates and  
Revenue Requirements  
[stephen.swetz@pseg.com](mailto:stephen.swetz@pseg.com)

Michele Falcao  
Regulatory Filings Supervisor  
[michele.falcao@pseg.com](mailto:michele.falcao@pseg.com)

Caitlyn White  
Regulatory Case Coordinator  
[caitlyn.white@pseg.com](mailto:caitlyn.white@pseg.com)

Michael McFadden  
[michael.mcfadden@pseg.com](mailto:michael.mcfadden@pseg.com)

Bernard Smalls  
[bernard.smalls@pseg.com](mailto:bernard.smalls@pseg.com)

**PJM Power Providers Group**

Decotiis, Fitzpatrick, Cole & Giblin, LLP  
Glenpointe Centre West  
500 Frank W. Burr Boulevard  
Teaneck, NJ 07666

William Harla, Esq.  
[wharla@decotiislaw.com](mailto:wharla@decotiislaw.com)

Alice M. Bergen, Esq.  
[abergen@decotiislaw.com](mailto:abergen@decotiislaw.com)

This CONFIDENTIAL application is for the Zero Emissions Certificate (“ZEC”) program. It is intended to allow any eligible nuclear power plant facility to apply for credits that will be issued in the State of New Jersey.

---

Issued By:  
New Jersey Board of Public Utilities  
November 19, 2018

**Revised May 6, 2020**

**NOTE: See the posted Q&A developed during the first application round and modified to address some specific questions regarding the application requirements.**

# Zero Emissions Certificate Application<sup>1</sup>

## I. Generation Applicant Information

Unit identification (name and/or designation): \_\_\_\_\_

Unit location: \_\_\_\_\_

Organization that owns facility: \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Federal Nuclear Generator I.D. Number and License Number: \_\_\_\_\_

Federal Tax I.D. Number \_\_\_\_\_

New Jersey Tax Identification Number \_\_\_\_\_

*\* If facility is owned by multiple organizations, make note in this section and provide all relevant information on a supplemental page.*

### Primary Contact for Application

Name \_\_\_\_\_

Title \_\_\_\_\_

Company Name \_\_\_\_\_

Daytime Phone Number \_\_\_\_\_ Email \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

### Authorized Applicant Representative (with ability to enter into agreements)

Name \_\_\_\_\_

Title \_\_\_\_\_

Phone \_\_\_\_\_

Email \_\_\_\_\_

---

<sup>1</sup> The Application must include an index of each item or document, with a brief description thereof, including the date.

Notes:

- Calculate all requests for information past or future from the date of application.
- Represent all costs in nominal dollars.
- Provide copies of all workbooks, with all formulae intact, that are used to generate the attachments provided in applications.
- Energy year refers to the New Jersey Energy Year, which starts every June and extends for twelve months.

**II. Generation Asset Information and Operation:**

1. Unit vintage and year applicant Unit was commissioned.
2. Total number of reactor units housed at this facility.
3. Total Unit capacity/total Unit size per PJM rules (MW).
4. Description of the ownership of the Unit and/or statutory authority of the applicant.
5. Annual average energy produced by the Unit over each of the past five (5) energy years and projected annual generation for the next five (5) energy years (MWh).
6. Annual average capacity and generation provided by the Unit into the energy and capacity markets over the past five (5) energy years and projected annual capacity and generation for the next five (5) energy years (MW & MWh).
7. Total annual Unit run-time over the past five (5) years (hours). Please provide full-year hours online and explain any significant deviation from the five-year average of hours online.
  - a. Identify refueling outages on an energy year basis over the past five (5) years (\$).
8. Plant personnel count for application year and five (5) years previous (annual).

### **III. Zero Emission Credit Justification - Financial:**

#### GENERAL

1. Provide current net book value of the Unit at the time of application. Explain how the initial book value was determined and provide annual year-end gross and net book values through 2019.
2. Provide current and historical financial statements conducted by the Unit's owner/operator for each Unit for the past five (5) years and the next five (5) years, including supporting workbooks and input assumptions. Include line items for:
  - a. Energy revenues
  - b. Capacity revenues
  - c. Variable operation & maintenance expenses
  - d. Fixed operation & maintenance expenses
  - e. Overhead and other non-operating expenses
  - f. Capital expenditures
  - g. Cost of capital
  - h. Cost of operational and market risks

#### COSTS

3. Provide certified costs over the past five (5) energy years, including, but not limited to: operation and maintenance expenses; fuel expenses; spent fuel expenditures; non-fuel capital expenditures; long-term fuel storage costs; and other capital costs, including uranium fuel pricing for the Unit; fully allocated overhead costs.
4. Provide certified cost projections over the next five (5) energy years, including, but not limited to: operation and maintenance expenses; fuel expenses; spent fuel expenditures; non-fuel capital expenditures; long-term fuel storage costs; and other capital costs, including uranium fuel pricing for the Unit; fully allocated overhead costs.
5. Provide current cost of capital, as well as required cost of capital for each of the next five (5) years plus a detailed accounting of how the cost of capital was determined.

#### REVENUES/INCOME

6. Identify and describe any obligations/commitments under which the Unit has operated in the past five (5) years and/or currently operates regarding the current New Jersey Basic Generation Service and any PJM markets, including any Reliability Must Run contracts, the duration of such obligations and/or commitments, and supporting documentation and calculations.
7. Provide a list of all active and anticipated contracts for capacity and/or energy supply by the Unit outside of the BGS and PJM markets. Include capacity and/or energy contracted, type of market, length of obligation, and customer. Be prepared to provide documentation upon request.

8. Provide the annual average Unit bid price in the annual Base Residual Auction (“BRA”) over the past five (5) years (\$/MW).
9. Provide a list of capacity and energy payments received from PJM for the Unit over the past five (5) years.
10. Provide all revenue projections over the next five (5) years related to:
  - a. unit-specific hedges to mitigate market exposure of the Unit,
  - b. capacity market revenues at the locational clearing price for the Unit in the Base Residual Auction regardless of whether the Unit cleared in the PJM capacity market auction
  - c. energy market revenues, including relevant underlying fuel price forecasts and relevant PJM forward power market curves, and
  - d. contracts outside the PJM markets.

Please state all of the assumptions used in the revenue projections. In forecasting power prices, please show the underlying load forecasts, and forecasts of the entry and exit of resources in the PJM market. Account for and explain changed capacity revenue expected to result from the December 2019 FERC capacity market decision. Include all citations and worksheets used for the calculations in Excel form. Be prepared to provide documentation upon request.

11. Provide a certification that the nuclear power Unit does not receive any direct or indirect payment or credit under a law, rule, regulation, order, tariff, or other action of this State or any other state, or a federal law, rule, regulation, order, tariff, or other action, or a regional compact, despite its reasonable best efforts to obtain any such payment or credit, for its fuel diversity, resilience, air quality, or other environmental attributes that would eliminate the need for the nuclear power plant to retire.
12. Provide a detailed list and description of any subsidies or grants **received** for the Unit from federal sources, state sources, PJM, or other governmental agency for the applicant Unit in the past five (5) years. Include the monetary amount received, exemptions for capacity bidding, and/or tax incentives. Be prepared to provide documentation upon request.
13. Provide a list and description of any subsidies or grants **anticipated** for the Unit from federal sources, state sources, PJM, or any other governmental agency for the applicant Unit. Include the monetary amount received, exemptions for capacity bidding, and/or tax incentives. Be prepared to provide documentation upon request.

## RISKS

14. Provide estimated cost of operational risks and market risks:
  - a. Provide a detailed explanation, including supporting workbooks, of how the costs of operational risk and market risk were calculated for energy years 2022–2024; and
  - b. Explain how the cost of operational risks and market risks would be avoided by ceasing operations.
  - c. Previous ZEC recipients should provide an update of the costs of operational and market risks.



15. Provide estimated risk-adjusted cost of capital:
  - a. Provide a detailed explanation, including supporting workbooks, of how the risk-adjusted cost of capital was calculated for energy years 2022 – 2024; and
  - b. Provide the methodology used to determine the risk-adjusted cost of capital, along with supporting documentation and industry benchmarks it deems appropriate, and juxtapose this against the original cost of capital.

## CASH FLOW ANALYSIS

16. For Units that participated in the prior eligibility period, provide a comparison analysis of projected cash flows at the time of the last application vs. the actual cash flows for the time the Unit received ZECs.
17. Demonstrate that the Unit is financially unviable, i.e., if the Unit's revenue and funding will be outweighed by the avoided costs of the Unit, for each year through 2030. Provide all backup documentation.
18. Provide all presentations, transcripts, and similar information made by the applicant to investors, equity analysts, and rating agencies for the past five (5) years regarding the Unit.
19. Provide a projection of subsidy requirements (\$/year) by Unit and MWh produced, in each of the next five (5) years, to maintain minimum revenue requirements required to fully cover all costs, including risk-adjusted cost of capital.
20. Provide any analyses that estimate the total net benefit (after costs) of entering into unit specific hedges for each year from 2017–2021.

#### **IV. Zero Emission Credit Justification - Environmental**

1. Provide an explanation, including any studies and relevant data, for how the Unit makes a significant and material contribution to air quality in New Jersey by minimizing harmful emissions that (a) result from electricity consumed in New Jersey or (b) adversely affect the citizens of New Jersey, and an explanation as to how a retirement would significantly and negatively impact New Jersey's ability to comply with State air emissions reduction requirements. Include air dispersion modeling results and supporting files.
2. Provide a detailed description, including any studies and relevant data, of the avoided greenhouse gas ("GHG") emissions avoided by this Unit's operation five (5) years prior to and projected five (5) years beyond the application date. Identify the emission sources that will be displaced by this Unit.
3. Provide a list of all environmental permits for the Unit. Indicate whether there were any environmental permit violations, enforcement actions, outstanding environmental compliance requirements, or remedial actions planned, ongoing, and completed for the Unit (including the surrounding facility and property) from 2018 to the present. Be prepared to provide documentation upon request.
4. Project what generation assets would fulfill the state's capacity and energy requirements if the Unit were to shut down. Include assumptions, supporting data, and source information for this analysis.
5. If applicable, discuss how applicant Unit's production of electricity generation will support the BPU's Renewable Portfolio Standards ("RPS") requirements and cost effective transition to a zero carbon supply.

## **V. Impact of the Unit's Deactivation:**

1. Indicate the remaining useful life of the generating Unit.
2. Estimate the costs that would be incurred by the applicant to shut down the Unit. What costs would be funded by the Unit's decommissioning funds, and what costs would be funded by the applicant?
3. Demonstrate the impact on ownership and applicant's earnings during each of the next five (5) years, assuming that the Unit shuts down. Include any financial impact(s) to the parent organization.
4. Explain the avoided costs to the applicant if the Unit is deactivated. Please include the costs associated with fuel, salary, O&M, capital improvement projects, permitting, and the costs of all other relevant factors involved. Provide backup documentation.
5. Provide results from internal or commissioned dispatch modeling of the impact of the Unit's retirement scenarios.
  - Include all assessments of avoided emissions, based on differential (with and without each Unit claimed for ZECs) scenario modeling
  - Include all work papers and modeling inputs and outputs
  - If no such modeling has been conducted, include an explanation and computation of avoided emissions from retention of the Unit.
6. Describe the status of decommissioning funds for the Unit as of the date of the application, include decommissioning status reports filed with the Nuclear Regulatory Commission ("NRC"), and identify any shortfall of decommissioning funds resulting from early retirement of the Unit.
7. Provide a list of all data provided by the applicant and related to the Unit to the U.S. Environmental Protection Agency ("EPA") over the past five (5) years. Be prepared to provide documentation upon request.
8. Provide a list of submissions of documentation (permits, enforcement actions, etc.) by the owner/operator regarding the Unit to the New Jersey Department of Environmental Protection ("NJDEP") over the past five (5) years to demonstrate that all standards and requirements are being met. Be prepared to provide documentation upon request.

## **VI. Miscellaneous**

1. Explain how the Unit makes a significant and material contribution to the diversity and resiliency of the energy resource mix for electricity delivered in New Jersey.
2. Explain whether receipt of the ZECs will have any impact on the Unit's participation in the wholesale markets. If so, how? (Response must be both quantitative and qualitative and include discussion of anticipated impact on the BGS auction and a comparison of costs and benefits.) For Units currently receiving ZECs, explain and show how receipt has impacted the Unit's participation in wholesale markets.
3. Explain how receipt of the ZECs will not lead to New Jersey ratepayers "double paying" for capacity, i.e., 1) paying ZEC-eligible Units for the environmental attributes while 2) not retaining the benefit of their capacity requirement, and therefore paying other units to fulfill New Jersey's PJM capacity commitment.

## **VII. Supplemental Submissions with the Application:**

Please provide the following:

1. A certification that the nuclear power generation Unit will cease operations within three (3) years unless the nuclear power plant experiences a material financial change. This certification must specify the necessary steps required to cease the nuclear power plant's operations. Also:
  - a. Identify and describe all of the applicant's commitments and obligations to the NRC that would be required in advance of a unit shutdown.
  - b. Indicate the earliest date that the applicant could access decommissioning trust funds for the Unit.
  - c. Indicate the earliest date that the applicant could realistically shut down the Unit per NRC, PJM, or other commitments and obligations.
2. A certified copy of the Unit's federal operating license demonstrating that the Unit is licensed to operate through 2030 or later.
3. A spreadsheet showing the estimated average rate impacts of the applicant Unit receiving ZECs to New Jersey customers across all rate classes.
4. Federal forms SEC 10-K, 10-Q, and other documents provided to the Securities and Exchange Commission ("SEC") for the past five (5) years; list and highlight references to the applicant Unit.
5. A list of all data provided by the Applicant and related to the Unit to the Federal Energy Regulatory Commission ("FERC") over the past five (5) years. Be prepared to provide documentation upon request.
6. An updated version of the data specific to the Unit provided to the Nuclear Energy Institute ("NEI") and the Electric Utility Cost Group ("EUCG") when responding to their latest survey.
7. A list of all filings by the applicant relating to the Unit with the NRC over the past five (5) years. Be prepared to provide documentation upon request.
8. A list of any NRC enforcement or legal actions taken or filed against the Unit's facility from ten (10) years prior to the application to present. Be prepared to provide documentation upon request.
9. A list of all audits performed by internal employees, commissioned, or performed by any governmental agency on the Unit over the past five (5) years. Be prepared to provide documents upon request.
10. A list of the incidents, by hours, over the past five (5) years when an energy bid from the Unit was not accepted into PJM Markets. Be prepared to provide documentation upon request.
11. Planned refueling outages for the Unit over the next three (3) years.
12. Shareholder payout over the past five (5) years attributed to the Unit and operator.

13. Certification that all equipment located at or servicing the nuclear power Unit are as stringent as the standards and emission limits in N.J.A.C. 7:27 et seq.
14. Certification of accuracy of application by applicant Company Officer.



**PHIL MURPHY**  
**GOVERNOR**

**SHEILA OLIVER**  
**LT. GOVERNOR**

**State of New Jersey**  
**BOARD OF PUBLIC UTILITIES**  
44 South Clinton Avenue  
Post Office Box 350  
Trenton, New Jersey 08625-0350  
[www.nj.gov/bpu/](http://www.nj.gov/bpu/)  
(609)777-3300

**Joseph L. Fiordaliso**  
**President**

Mary-Anna Holden  
**Commissioner**

Dianne Solomon  
**Commissioner**

Upendra Chivukula  
**Commissioner**

Bob Gordon  
**Commissioner**

May 20, 2020

**RE: Q&A Informational Document**  
**Zero Emissions Certificate Application**

Board Staff has developed the following Q&A to questions previously received to assist applicants with the ZEC Application.

**Q1: In the case of shared ownership of a nuclear unit, should the application responses include information for all entities with ownership shares or only information from the operating entity?**

A: All answers and submissions related to the application must include data for all owning entities, regardless of size of ownership stake. This is indicated on the application on page 2 under the Generation Applicant Information section and applies to all answers. Additionally, N.J.S.A. 48:3-87.5(a) states that the applicant shall provide to the Board "any financial information requested...".

**Q2: How should applicants address instances where accounts for the unit(s) are not maintained in the categories identified in the application?**

A: It is the responsibility of the applicant to provide financial information in the form and categories requested in the application.

**Q3: If the question does not specifically state "from owner/operator" and information is requested on a unit with co-ownership, does that information request apply to all owners of the unit?**

A: Yes. Refer to Question 1 Answer.

**Q4: Are NRC inspection reports included in the response to Section VII, Question No. 7, of the application?**

A: Yes.

**Q5: Should bulk information and reports be submitted in hardcopy or via “links”?**

A: The responses should be submitted on data disc and/or electronically where practical.

**Q6: Regarding FERC information, should the response include information on filings pertaining to the applicant unit only or inclusive of the parent company?**

A: The response should include any and all filings made to FERC on direct behalf of the applicant unit and filings that are relevant to the applicant unit’s operations, be they physical, financial, or transactional.

**Q7: Question No. 8 in Section VII of the application asks for legal actions and enforcement taken or filed against the unit. What is the timeframe?**

A: The response should include any actions and/or enforcements from ten (10) years prior to the application until present.

**Q8: Is DVD electronic format a permitted medium for data and documents required for submission by the applicant?**

A: Yes, electronic data disc format is acceptable to supplement the application submissions. All electronic submissions must include a cover letter listing each file on the disk or flash drive and a description of the file’s contents.

**Q9: The November 19, 2018 Board Order for the ZEC Program indicates that applicants must explain any declarations of confidentiality on the application and submitted data. However, the ZEC Act states that all submissions are considered confidential. Does that mean that confidentiality requests should only be made for data not covered under the ZEC Act provisions?**

A: No. Any and all data that the applicant deems confidential must be accompanied by an explanation as to why confidentiality is sought. This is standard Board policy. N.J.A.C. 14:1-12.1 *et seq.*

**Q10: The November 19, 2018 Board Order for the ZEC Program indicates that redacted and unredacted versions of the application and submission requirements must be submitted by the applicant if said applicant claims information confidential. Can documents that are entirely confidential, in the eyes of the applicant, be omitted from the redacted version of the filing?**

A: No. Information and submissions in the redacted version must be redacted to indicate that there was data provided with the application.

**Q11: The ZEC Application requires copies of information provided by the owner/operator to the SEC for the past five years. Does this only pertain to the specific unit or to the parent company filings as well?**

A: This applies to the unit’s owner, operator, parent company, and any other entity that claims a financial interest in the unit.

**Q12: The ZEC Application requires a spreadsheet of rate impacts to all rate classes of New Jersey electric customers. How should a generation owner have sufficient information to respond to this request?**



A: It is the responsibility of the applicant to determine the best method of obtaining this information. The response must be verifiable.

**Q13: How should the application fees be submitted?**

A: Wire transfer is the best method, and instructions to do so can be requested. A check is also acceptable.

**Q14: Are individual “certifications” needed for each document where certification is required per the application, or is one certification for the package acceptable?**

A: Each document should be accompanied by its own certification as required by the application.

**Q15: What hour of the day is the application filing deadline September?**

A: The filing must be made during the normal business hours of the BPU on the date to be specified by the pending procedural schedule *at or before 4:00 P.M. EST.* N.J.A.C. 14:1-1.4

**Q16: Can the non-disclosure agreement format be discussed?**

A: As noted in the Board’s November 19, 2018 Order, the applicant, Rate Counsel, and any other parties to whom the Board has granted access to confidential information are expected to execute the standard Agreement of Non-Disclosure of Information Claimed To Be Confidential.