



Agenda Date: 11/19/18  
Agenda Item: 9A

## STATE OF NEW JERSEY

### Board of Public Utilities

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[www.nj.gov/bpu/](http://www.nj.gov/bpu/)

### DIVISION OF STATE ENERGY SERVICES

IN THE MATTER OF THE IMPLEMENTATION OF L. ) ORDER ESTABLISHING THE  
2018, c. 16 REGARDING THE ESTABLISHMENT OF A ) PROGRAM, APPLICATION, AND  
ZERO EMISSION CERTIFICATE PROGRAM FOR ) PROCEDURAL PROCESS  
ELIGIBLE NUCLEAR POWER PLANTS )  
 ) DOCKET NO. EO18080899

#### Parties of Record:

**Stefanie A. Brand, Esq., Director, New Jersey Division of Rate Counsel**  
**Jeffrey W. Mayes, Esq., General Counsel, Monitoring Analytics, LLC**

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 requires 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 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 (4) investor-owned electric distribution companies, i.e., Atlantic City Electric ("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 identifies the basic steps required to establish this program, including program logistics, funding, costs,

application, eligibility requirements, selection process, and the timeframes for meeting several requirements of the Act.

The Act requires that the Board complete a proceeding within 180 days after the date of enactment of the Act, i.e., by November 19, 2018, to allow for the commencement of a ZEC program. In the proceeding, the Board is required – after notice, the opportunity for comment, and public hearings – to issue an order establishing a ZEC program for selected nuclear power plants. The Board's Order must include but need not be limited to: (i) a method and application process for determination of the eligibility and selection of nuclear power plants; and (ii) establishment of a mechanism for the EDCs to purchase ZECs from selected nuclear power plants. See N.J.S.A. 48:3-87.5(b).

The Act also requires that the Board complete the proceeding to certify applicant nuclear power plants as eligible for the program and establish a rank-ordered list of the nuclear power plants eligible to be selected to receive ZECs. This proceeding must be completed no later than 330 days after the date of enactment of the Act, i.e., by April 18, 2019, after notice, the opportunity for comment, and public hearing. See N.J.S.A. 48:3-87.5(d).

In addition, within 150 days after the date of enactment of the Act, i.e., by October 22, 2018, the Act requires each EDC to file with the Board a tariff to recover from its retail distribution customers a charge in the amount of \$0.004 per kilowatt-hour, which, according to the Act, reflects the emissions avoidance benefits associated with the continued operation of selected nuclear power plants. The Act provides that the Board shall approve the appropriate tariff after notice, the opportunity for comment, and public hearings, within 60 days after the EDCs' tariffs are filed. See N.J.S.A. 48:3-87.5(j). If the Board determines, in its discretion, that no nuclear power plant that applied satisfies the objectives of the Act, the Board shall be under no obligation to certify any nuclear power plans as an eligible nuclear power plant. Ibid.

In accordance with the Act, the Board has provided notice and the opportunity for comment and has held public hearings. For the purpose of establishing a ZEC program for selection of eligible nuclear power plants, this Order includes: (i) a method and application process for determining the eligibility of nuclear power plants; (ii) a draft method and process for ranking and selecting eligible nuclear power plants; and (iii) establishment of a mechanism for each EDC to purchase ZECs from selected nuclear power plants.

## II. PROCEDURAL HISTORY

### A. Initiating Order

Under the Act, the Board is responsible for creating and administering the ZEC program. On August 29, 2018, the Board approved an Order<sup>1</sup> initiating the creation of the ZEC program. Specifically, the Board (i) directed Board Staff ("Staff") to facilitate the establishment of a ZEC

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<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, Order dated August 29, 2018.

application process and related Act activities, and take all necessary steps required per the Act, including scheduling public hearings, establishing a comment process, and preparing for consideration by the Board a completed application process by November 19, 2018; (ii) directed the EDCs to file tariffs in compliance with the Act by October 22, 2018, for approval by the Board; (iii) designated President Joseph L. Fiordaliso as the Presiding Officer, who is authorized to rule on all motions that arise during the pendency of final Board action as required under the Act and modify any schedules that may be set as necessary to secure a just and expeditious determination of the issues; and (iv) directed that any entities seeking to intervene or participate in the tariff portion of this matter file the appropriate application with the Board by October 23, 2018.

Consistent with the Act, the Board sought stakeholder input on the method and application process for determining the eligibility and selection of nuclear power plants, and on the establishment of a mechanism for each EDC to purchase ZECs from selected nuclear power plants. This process included stakeholder meetings to review the legislative requirements, and solicitation and review of stakeholder comments, toward the goal of establishing a ZEC application and selection process.

#### **B. Public Hearings**

In a public notice (See Appendix A) issued September 11, 2018, the Board solicited comments from stakeholders on the ZEC program and application process. The Board's notice specifically sought comments on seventeen (17) questions related to the implementation process for the ZEC program. The notice invited members of the public to attend and present their views at three (3) public hearings, which were held on October 4, 2018 in Hackensack; October 10, 2018 in Atlantic City; and October 11, 2018 in New Brunswick. The meetings were well attended, with twelve (12) to twenty (20) participants per meeting. Members of agencies and corporations spoke, as well as some members of the public.

Numerous organizations provided feedback against the program. AARP and several members of its organization spoke, arguing against the establishment and implementation of a ZEC program, asserting that the costs will be detrimental and unaffordable for New Jersey senior citizens. The New Jersey Division of Rate Counsel ("Rate Counsel") spoke, questioning the need for subsidies for nuclear units in New Jersey, arguing that their operational costs are covered by market revenues and that only their profits are at risk. Rate Counsel urged the Board to conduct a thorough financial review of applicant units during the program process. The Chemistry Council argued against the need for the subsidy, stating that the plants are financially viable. Additionally, the New Jersey Sierra Club stated that renewable generation sources, rather than nuclear units, should be funded and implemented.

A number of entities spoke in favor of the program. PSE&G, representatives of multiple labor unions, the Brattle Group, the Advocacy Council for Nuclear Matters, Exelon, Meadowlands Regional Chamber of Commerce, New Jersey Energy Coalition, the African American Environmentalist Association, and the Nuclear Energy Institute spoke in favor of the ZEC

program, asserting that subsidies are necessary to keep the plants operational, offering substantive suggestions for how the program should be established, suggesting how the ranking of the successful applicants should be implemented, and emphasizing the air quality, financial, generation resilience, and economic benefits anticipated from units receiving ZECs.

Other individuals spoke both for and against the ZEC program.

In addition, the EDCs held eighteen (18) total public hearings on the specific tariff modifications required by the Act. These hearings and the subsequent respective tariff modifications are discussed in the individual proposed tariff filings and Orders.<sup>2</sup>

### C. Comments Received

In the September 11, 2018 public notice and at the public hearings, the Board invited members of the public to file written comments through standard USPS mail or via electronic submission to the Board by October 22, 2018. Written comments reflected a range of perspectives, from total support for the program to outright opposition. Below is a summary of the comments received by the Board.

- The Board received more than 2,200 individual letters from AARP members, the majority of which contained similar and consistent arguments, urging the Board to reject a ZEC "tax."
- PSE&G submitted detailed comments on the questions listed in the public notice and provided its perspective on the Act's requirements. Its main assertion was that, without the ZEC program, the state's nuclear units would not be financially viable after three (3) years of operation and would need to shut down, which would in turn have a significantly negative impact on the local economy and air quality in New Jersey.
- The Chemical Council of New Jersey expressed concern over the cost increases with the ZEC subsidy; supported Rate Counsel's access to confidential information submitted as part of applications; suggested the utilization of PJM Interconnection LLC ("PJM") resources to develop the ZEC program; suggested that the Board consider potential

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<sup>2</sup> I/M/O Jersey Central Power & Light Company for Review and Approval of a Zero Emission Certificate Recovery Charge, BPU Docket No. EO18091002, Order dated November 18, 2018; 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 Dated 8/29/18, BPU Docket No. EO18091003, Order dated November 19, 2018; I/M/O Public Service Electric and Gas Company's Request for Approval of a Zero Emission Certificate Recovery Charge, BPU Docket No. EO18091004, Order dated November 19, 2018; I/M/O Rockland Electric Company's Filing for Review and Approval of the Zero Emission Certificate Recovery Charge, BPU Docket No. EO18091005, Order dated November 19, 2018; 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, Dated August 29, 2018, BPU Docket No. EO18091018, Order dated November 19, 2018.

benefits to the nuclear units by New Jersey's inclusion in the Regional Greenhouse Gas Initiative ("RGGI"); urged the Board to determine the actual amount of subsidy needed as soon as allowed by the Act; and expressed concern that plants outside New Jersey might be subsidized by New Jersey ratepayers.

- Rate Counsel submitted comments and provided specific answers to the questions posed in the public notice. It questioned the need for the subsidy and urged the Board to consider avoided costs, future market costs, specific metrics for review of applications, interaction of applicant affiliate companies, the need for detailed supporting documentation, adhesion to New Jersey Department of Environmental Protection ("NJDEP") and Federal air quality standards, and evaluation of the difference between "needed" and "desired" earnings.
- NRG Energy, Inc. ("NRG") provided comments and addressed the specific questions in the public notice. It indicated the need for specific and significant financial documentation and back up, a Net Present Value analysis, merchant versus "regulated" cost of capital review, operational and market risk analysis, forward energy pricing, and parent company financial review. It also argued that the Board should consider carbon benefits of renewable energy sources as replacement resources for nuclear units, with the goal of aiming to obtain the greatest carbon impacts for the lowest costs.
- The NJ Business and Industry Association ("NJBIA") submitted general comments, stating that it has traditionally supported nuclear generation and fuel diversity. NJBIA recommended that applicants provide transparent information, that subsidized generation remain within state boundaries, and that applicants make a long term commitment to providing power to New Jersey. It indicated that, since New Jersey's commercial and industrial customers consume 37% of the state's energy and rates are already high, NJBIA supports the evaluation process proposed by the Act.
- The Sierra Club submitted general comments, expressing concern about a transparent application process, the possible operation of nuclear units beyond their life cycle if they receive ZECs, and the lack of a sunset provision for the Act. It stressed that the Board should not inhibit New Jersey's efforts to establish renewable energy in favor of the nuclear units.
- PJM Power Providers Group ("P3") submitted comments via Dr. Sotkiewicz of E-Cubed Policy Associates. It strongly argued that no subsidies are required and that PSE&G's New Jersey nuclear units are financially solvent through 2026 based on futures. It indicated that any ZEC subsidy will significantly increase costs to New Jersey customers and would negate PJM market savings, and that ZECs are not a cost effective method to reduce carbon emissions.
- AARP submitted general comments, addressing some of the questions listed in the public notice. AARP does not support a "nuke tax" and questions the validity of the

\$0.004 per kWh rate for ZECs without an independent evaluation of the rate. It identified that the nuclear units are deregulated and that the Board needs to consider the affordability and reasonableness of the ZEC rate increase. It recommended that the Board review all financial information from applicants, including that of parent companies, as well as assessments by PJM and the PJM Independent Market Monitor, and that air quality should be reviewed on a regional, rather than solely New Jersey specific, level.

- The Center for Climate and Energy Solutions submitted comments supporting the ZEC program. It argued that all New Jersey units should be allowed to apply and be eligible for ZECs based on the environmental benefits they provide and the need to maintain air quality in New Jersey.
- The Advocacy Council of Nuclear Matters submitted comments supporting ZECs for nuclear units, citing the reliability of the units, emissions reductions, and historical economic impacts of plant closures. It stated that closing nuclear units would create a dependence on natural gas fueled units. It argued that publicly available data would provide sufficient information to make an informed evaluation of a unit's viability.
- The New Jersey Energy Coalition submitted comments supporting ZECs for nuclear units, citing reliability, clean energy, and the applicability of the program to assist in meeting the Governor's clean energy goals. It stated that the Board should consider an applicant unit's direct connection to the New Jersey grid, state clean energy goals, and job impacts of the units for ranking purposes.
- The African American Environmentalist Association submitted comments indicating full support of the Hope Creek and Salem unit applications. It cited air quality and environmental benefits as well as environmental justice for the surrounding communities and state as a whole.
- Sonecon, LLC submitted comments stating that the national security benefits of nuclear power plants should be taken into account when determining eligibility under the ZEC program.
- Environment New Jersey submitted comments opposing the ZEC program and criticizing the lack of transparency of the legislative process that resulted in the Act. It agreed with Rate Counsel and recommended that the Board review all financial information from applicants, including that of parent companies, as well as assessments by PJM and the PJM Independent Market Monitor, and stressed that air quality should be reviewed on a regional, rather than solely New Jersey specific, level.
- The PJM Independent Market Monitor ("IMM") submitted comments opposing the ZEC subsidy and specifically stated that, based upon publicly available data, the three nuclear power plants in New Jersey will remain profitable into the foreseeable future and

therefore will not need these subsidies. They stated that net going forward costs are all that is required to determine the need for a subsidy, operational and market risks are already included in market pricing, data submitted to the Nuclear Energy Institute ("NEI") should be provided by applicants, renewable and combined-cycle plants would serve as the replacement generation if the nuclear units shut down, and units requiring the lowest subsidy per year should be selected to minimize rate payer impacts. The IMM also provided a spreadsheet using publically available data showing the profitability of the Hope Creek and Salem units through 2021.

- The Nuclear Energy Institute submitted comments emphasizing its concern over the threat of early retirement of nuclear power plants and recognizing the role of the ZEC program in potentially preventing early retirements.
- Jersey Shore Nuclear Watch submitted comments opposing the ZEC program that questioned the environmental benefits that nuclear power plants provide.

Finally, many written comments from individuals not representing an organization challenged the need for the Act and ZEC subsidies.

The Board has considered the oral and written comments and has incorporated many of the suggestions contained therein regarding the proposed application and program processes for application eligibility review and ranking of the applicants.

#### **D. Motions**

Six (6) entities filed motions in the program proceedings. Rate Counsel filed a Motion for Access to Confidential Information, and five (5) motions were filed to intervene or participate in the proceedings by the New Jersey Large Energy Users Coalition ("NJLEUC"), the IMM, NRG, P3, and PSE&G, PSEG Power LLC, and PSEG Nuclear LLC ("PSEG Companies"). In addition, NJLEUC and the IMM filed motions for admission pro hac vice.

The Board addresses the motions to intervene or participate by NJLEUC, NRG, P3, and the PSEG Companies, as well as NJLEUC's motion for admission pro hac vice, in the companion Order on Motions to Intervene or Participate and for Admission Pro Hac Vice, I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants, Docket No. EO18080899, Order dated November 19, 2018.

#### **Rate Counsel Motion for Access to Confidential Information**

By letter dated September 21, 2018, Rate Counsel filed a motion with the Board and with the New Jersey Attorney General seeking access to confidential information in this proceeding and all proceedings before the Board arising out of that matter and the Act. Rate Counsel stated its willingness to accept this information subject to the standard Agreement of Non-Disclosure of

Information Claimed To Be Confidential ("NDA") developed by the Attorney General, Rate Counsel, and the Board-regulated public utilities and routinely used in matters before the Board. Rate Counsel stated that it is entitled to be a party to these proceedings, citing N.J.S.A. 52:27EE-48, which granted Rate Counsel with broad jurisdiction to represent the public interest, and that the only question is whether Rate Counsel's participation may be deemed "essential." Rate Counsel argued that the legislatively-designated representative of New Jersey's ratepayers must have a meaningful opportunity to participate in the review of all documents and data that nuclear power plants will submit in support of their requests for subsidies of hundreds of millions of dollars to be collected from ratepayers. Rate Counsel concluded that its participation is essential because ratepayers' interests will not otherwise be represented.

The Board received no objections to the motion.

The IMM Motion to Intervene and Motion for Admission *Pro Hac Vice*

By motion dated October 19, 2018, Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM, submitted its petition to intervene in this proceeding and in the individually proposed tariff petitions filed by the EDCs. The IMM stated that it is an organization created to objectively monitor the competitiveness of PJM markets and that PJM's Open Access Transmission Tariff requires the IMM to monitor compliance with PJM market rules, actual or potential design flaws in PJM market rules, structural problems in the PJM market that may inhibit a robust and competitive market, and the potential for a market participant to exercise market power or violate any PJM rules. The IMM asserted that, as this proceeding involves review of the establishment of a ZEC program and approval of an associated charge for eligible nuclear power plants operating in PJM competitive markets, it implicates matters within the IMM's purview. The IMM also asserted that, if approved, this proposal could have a substantial impact on competition in the wholesale electric markets administered by PJM, which may in turn have a substantial impact on competition and rates in the retail markets subject to the Board's jurisdiction. Further, the IMM stated that its interest in the outcome of this proceeding is in protecting the public interest in PJM markets regulated through competition, that the IMM has a substantial interest in these proceedings because it has the exclusive duty to perform the market monitoring function for PJM in accordance with the duties required by the PJM tariff, and that no other party can adequately represent the IMM's interests.

By motion dated October 19, 2018, the IMM, via Steven S. Goldenberg, Esq., also moved for the admission pro hac vice of Jeffrey W. Mayes, Esq. Mr. Goldenberg states that Mr. Mayes is a member in good standing admitted to practice in the Commonwealth of Pennsylvania, the Commonwealth of Virginia, and the District of Columbia; and that Mr. Mayes has special expertise developed through his association with the IMM. The motion included a sworn affidavit by Mr. Mayes, in which he represents that he is associated with Mr. Goldenberg as New Jersey counsel of record, he is General Counsel for the IMM and will represent the IMM in this proceeding, he has paid the fees required by R. 1:20-1(b) and 1:28-2, and he agrees to abide by the other requirements for admission pro hac vice. Mr. Mayes forwarded proof of payment of the fees required by R. 1:20-1(b) and 1:28-2 to Staff.



The PSEG Companies, a movant for intervention in this matter, submitted a brief dated October 29, 2018 in opposition to the IMM's motion to intervene and stated that, in the alternative, the IMM's involvement should be as a participant without access to confidential information. First, the PSEG Companies argued that the IMM failed to satisfy the statutory criteria requiring it to demonstrate that it is "essential" to aid the Board in making the determinations required under the Act. The PSEG Companies stated that the Board itself has the inherent capabilities to make those determinations with its own personnel and that, based on court cases defining the meaning of "essential terms," the IMM's involvement is therefore neither "basic and necessary" nor "of the utmost importance." Second, the PSEG Companies asserted that the IMM failed to satisfy the regulatory criteria for intervention because (a) the IMM will be speculatively and not directly affected by the outcome of the case; (b) the IMM's stated interest in protecting competition is not within the scope of the proceeding; (c) the IMM is not interested in assisting the Board in implementing the legislation, as evidenced by its presentation of financial terms that are inconsistent with legislative intent; (d) the IMM has not demonstrated how its involvement would affect the legislatively-established rate for ZECs at issue in this proceeding; and (e) the IMM's intervention would delay the Board's deliberations, introduce confusing and out-of-scope issues, and impose extraordinary burdens on the Board as it seeks to meet its statutory obligations in a timely manner.

The IMM filed an answer dated November 2, 2018, asserting, first, that it met the standards for intervention because it is a consumer of energy in the PJM footprint and therefore would be directly affected by the outcome of the proceeding; and that, more importantly, the IMM's interest in protecting competition in PJM markets by ensuring that generators selected to receive ZECs actually meet the applicable criteria is not speculative and is within the scope of this proceeding. Also, the IMM asserted that the PSEG Companies had no basis for claiming that the IMM's participation would create confusion or undue delay and that, to the contrary, the IMM's participation would add clarity and reduce confusion due to the IMM's unique insight into and perspective on the financial viability of nuclear power plants seeking ZECs. Second, the IMM noted that it is for the Board to determine which entities are "essential" to this proceeding. Moreover, the IMM argued that its unique experience reviewing generators' costs in the PJM capacity markets as part of reviewing unit-specific competitive offers will be of value to the Board in this proceeding.

Rate Counsel filed a letter dated November 2, 2018 in support of the IMM's motion to intervene and in support of the IMM receiving confidential information. Rate Counsel asserted that the IMM would be "substantially, specifically and directly" affected by the granting of ZECs that would affect the operation of the PJM wholesale electric markets and thereby affect the IMM in the performance of its market monitoring function. Rate Counsel also argued that the IMM would make a significant contribution to the Board's understanding and determination of issues in this proceeding, including financial findings and findings relating to the impact of ZECs on the PJM wholesale electric markets, due to its unique familiarity, knowledge, and expertise in the functioning of the PJM wholesale electric markets.

### III. ELIGIBILITY AND SELECTION PROCESSES

The Act requires a formal program be established to receive, review, determine eligibility, and rank any eligible nuclear plants for receipt of credits. To accomplish this, several teams will be established to review the various aspects of the process along with an application for ZECs.

The application (see Appendix B) consists of numerous and extensive questions and requirements for supporting documents, studies, certifications, and narratives. Pursuant to the Act, to be certified as eligible, a plant shall: 1) be licensed by the U.S. Nuclear Regulatory Commission ("NRC") through 2030, 2) demonstrate a significant and material contribution to New Jersey air quality (minimizing emissions), 3) demonstrate anticipated plant shutdown within three years due to its financial situation, 4) certify that the facility does not receive any subsidies from other entities or agencies, and 5) submit an application fee. Staff developed the application after reviewing all stakeholder and public comments. The application is designed to capture all information that the Board deems necessary and relevant to properly determine eligibility of an applicant unit. The information required in the application and subsequent documentation requirements are extensive to ensure the validity of a plant's claimed need for ZECs and are within the Board's right to require per the Act. The Act grants the Board discretion to establish what information is required to perform a complete and thorough review of a plant's need and qualifications for ZECs. The application shall be submitted on a unit, not facility, basis, as some nuclear facilities have more than one generating unit.

The deadline for receipt of completed applications for a nuclear generating unit that seeks ZECs is December 19, 2018 to the Board Secretary. Each application will be given a separate docket number for the purposes of filing. Any applicant claiming confidentiality of the application and submissions must state the specific sections of its submitted application that it considers confidential and a detailed reason why that information should be protected. Additionally, if the application and/or supporting documentation is deemed confidential by the applicant, the applicant must submit both an unredacted and a redacted version of the application and all supporting documentation.

Two teams will be established to evaluate the various requirements of the ZEC program and ensure proper review of received applications based on the five (5) criteria set forth in the ZEC Act. One team will determine the eligibility of applicant units ("Eligibility team"), and the other team will score and rank eligible units ("Ranking team").

The Eligibility team will first review applications for completeness. If the application is deemed incomplete, the applicant will be contacted, and the application will be rejected. If the application is deemed complete, review of that application will continue. The Eligibility team will specifically consider all of the following criteria. Additional criteria may be evaluated as the review process proceeds.

- the unit's operating expenses verses revenue generated;
- the unit' participation in past and project future markets;

- avoidable versus operational costs if the unit were to shut down;
- historical bids into the capacity and energy markets;
- emissions avoided for New Jersey residents if the unit continued operation;
- the unit's contribution to New Jersey air quality;
- the unit's compliance with NJDEP requirements and criteria;
- economic impacts to New Jersey if the unit shuts down;
- contribution to fuel diversity in the region and in PJM;
- complete financial analysis of the unit and owner (may include parent company and affiliates);
- capital planning and spending of the unit;
- maximum capacity and historical output of the unit;
- all generation costs of the unit;
- annual operation and maintenance ("O&M") costs;
- previous, current, and anticipated subsidies received by the unit from private and governmental agencies;
- the unit's impact on the capacity market and operations within PJM;
- impacts to greenhouse gases ("GHG") in New Jersey if the unit shuts down;
- interaction and supplementation of NJ Energy Master Plan ("EMP") and Renewable Portfolio Standards ("RPS");
- the unit's anticipated lifecycle; and
- the amount of subsidy, if any, required to keep the unit economically viable

This required information will be utilized to determine if each application meets all of the eligibility criteria established in the Act, beyond the application fee. The evaluation by the Eligibility team will determine either acceptance or denial of each application. An applicant must submit all of the required information to satisfy all of the criteria to be deemed eligible and receive continued review by the "Ranking" team.

The first task of the Ranking team, which will occur concurrently with application reviews by the Eligibility team, will be to finalize the scoring methodology and criteria. Staff has developed a draft scoring matrix similar to those used by the Board for other programs in its review of request for qualifications ("RFQ") responses when selecting a subcontractor. This matrix, if deemed an appropriate methodology by the Ranking team, will weight ranking criteria for a total score of 100.<sup>3</sup> The finalized ranking method will be presented to the Board for approval at the February 2019 agenda meeting. The Ranking team will then review applications received from the Eligibility team and score each application based on their established scoring criteria and matrix. Once the Ranking team completes the scoring of all eligible applications, it will create a "ranked list" of eligible units, from highest score to lowest score, per the Act. In the unlikely event that two or more applications have the same score, the tie will be broken based on the air quality impact score(s) of each application.

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<sup>3</sup> The Ranking team will have the discretion to modify this approach if it determines that another method is more practical.

The two teams will operate separately from and independently of one another, and no personnel will be members of both teams. The teams will include Staff, NJDEP staff, and members of Staff's consultant, which will be determined prior to the submission of applications and commence work on or about January 2, 2019.

Staff will present the ranked list, composed of all applicant Units, listed from highest score to lowest score, along with the results of its review of all eligible applications, to the Board at the April 2019 Agenda meeting for approval. Per the Act, the highest ranked units, in order, will be selected to receive ZECs until their combined total capacity equals no more than 40% of the total number of MWh distributed in the State in the 2017 energy year.<sup>4</sup>

Units that are awarded ZECs will receive them for the period between April 19, 2019 through May 31, 2019 and the following three energy years (2019–2020, 2020–2021, 2021–2022)<sup>5</sup> per the Act. The amount of ZECs received by the generator and paid by the EDCs will equal the number of MWh of electricity it produced for the specific energy year.

#### **IV. FUTURE ACTIONS AND CONSIDERATIONS**

##### **A. Future Board Action Beyond Initial Development Program**

Staff will present the Board with a recommendation to hire a consultant to assist Staff with eligibility review and ranking review of ZEC applications at the December 2018 Board Agenda meeting. Responses to the pending Board's Request for Qualifications were received on November 1, 2018, and Staff is currently reviewing these responses to select and recommend a consultant. The intended commencement of the consultant contract is January 1, 2019.

Staff will present the Board with an Order recommending the finalized scoring and ranking methodology for all eligible applications at the February Board Agenda meeting. While Staff has a concept for this process procedure, Staff will seek review by and evaluation from the consultant to assist with finalizing the application ranking method in a fair and consistent manner.

On a yearly basis, using the prior energy year information, Staff will review the results of the ZEC market, review the metrics of existing units that received the certificates, and review any new applications for ZECs under the same program guidelines. Each applicant unit will be required to submit a certification that it will operate at full or near-full<sup>6</sup> capacity.

After the initial three (3) year award of ZECs to a unit, the Board will evaluate the set kWh charge established by the Act and modify that amount if necessary, pursuant to N.J.S.A. 48:3-87.5(j)(3).

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<sup>4</sup> See N.J.S.A. 48:3-87.5(g)(1).

<sup>5</sup> See N.J.S.A. 48:3-87.5(h)(2).

<sup>6</sup> For the purposes of this program, "near full capacity" will be defined as operating at full capacity, minus any refueling or maintenance shutdowns, which must be fully described in the certification.

## **B. Potential Conflicts at the Federal and Regional Level**

The Board notes two current initiatives on the Regional and Federal levels that would impact the award of ZECs to generating facilities.

For one, the Federal Energy Regulatory Commission ("FERC") has declared PJM's current Capacity Market construct to be unjust and unreasonable for failing to account for certain state programs, including the New Jersey ZEC program. FERC has since initiated a separate, paper hearing to develop the replacement rate for PJM's Capacity Market.<sup>7</sup> The Board has actively participated in this proceeding, including seeking rehearing of the FERC's initial order and filing argument in the paper hearing. Decision from FERC and subsequent compliance filing from PJM Interconnection L.L.C. are anticipated during the pendency of this proceeding at the Board. When changes are made to the Capacity Market construct, the Board will have to determine what is in the best interest of the ratepayers, in accordance with the Board's general regulatory authority.

The second initiative is ongoing at FERC and the U.S. Department of Energy ("DOE"). DOE initiated a rulemaking that FERC reformed into a proceeding on resilience.<sup>8</sup> The Board is also aware that First Energy Solutions Company filed for emergent relief for nuclear sector generators. This proceeding remains pending. Depending on the outcome of these proceedings, the Board recognizes that potential ZEC applicants could be given a subsidy based on a Federal mandate and may not need ZECs to remain solvent. The Board has been active in these proceedings and will continue to monitor their development.

## **V. DISCUSSION AND FINDINGS**

The Act sets the standard for a party to be permitted to review information claimed to be confidential by an applicant for ZECs. N.J.S.A. 48:3-87.5(a) provides:

The board and the Attorney General shall jointly approve the disclosure of such confidential information to a party that they deem essential to aid the board in making the determinations required under this subsection, provided that the party is not in a position such that disclosure could harm competition and the party agrees in writing to maintain the confidentiality of the confidential information.

[N.J.S.A. 48:3-87.5(a)]

Having reviewed Rate Counsel's motion for access to confidential information, the Board **HEREBY FINDS** that Rate Counsel, in its 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 and that disclosure of confidential information to Rate Counsel will not harm

<sup>7</sup> FERC Docket No. EL18-178 PJM Interconnection, LLC re: 206 Proceeding to Determine Just and Reasonable Replacement Rate

<sup>8</sup> U.S. Department of Energy, Docket No. RM17-3-000, Grid Resiliency Pricing Rule, Sept. 28, 2017.

competition. Consistent with the Act, the Attorney General reviewed the various motions to receive confidential information and approves the disclosure of confidential information to Rate Counsel. Accordingly, the Board **HEREBY APPROVES** disclosure of information to Rate Counsel claimed to be confidential by applicants for ZECs, conditioned upon execution of the standard NDA utilized in public utility cases filed with the Board.

The Board both acknowledges and supports the IMM's mandate. The Board, individually and as a member of the Organization of PJM States, Inc. ("OPSI"), has repeatedly supported the IMM's ability to independently engage in proceedings before the FERC.<sup>9</sup> The Board and OPSI have recognized that the IMM's role helps to ensure public confidence in the competitiveness and legitimacy of wholesale markets.<sup>10</sup> The Board acknowledges that the IMM has also actively engaged in the capacity market proceeding at the FERC. In previously supporting the IMM's role in regulatory proceedings, the Board and OPSI have repeatedly recognized that "the independent market monitor must continue to be free to comment on salient market issues and market designs, current and proposed, to . . . state commissions, and to FERC."<sup>11</sup> In light of the foregoing, the Board **HEREBY FINDS**, pursuant to N.J.A.C. 1:1-16.3, that the IMM has an interest in the outcome of this proceeding.

Also, the Board acknowledges that the IMM is in a unique position to review the financial viability of nuclear power plants seeking ZECs based on its experience reviewing generators' costs in the PJM capacity markets as part of reviewing unit-specific competitive offers. Having reviewed the IMM's motion and the submissions received in response to that motion, the Board **HEREBY FINDS** that the IMM is essential to aid the Board in making the determinations required by the Act – including, but not limited to, the evaluation of an applicant's contribution to fuel diversity in the region and in PJM, the complete financial analysis of the unit and the owner, and the unit's impact on the capacity market and operations within PJM – and that disclosure of confidential information to the IMM will not harm competition. Consistent with the Act, the Attorney General reviewed the IMM's motion and approves the disclosure of confidential information to the IMM. Accordingly, consistent with the Act and the approval of the Attorney General, the Board **HEREBY APPROVES** disclosure of information to the IMM claimed to be confidential by applicants for ZECs, conditioned upon execution of the standard NDA utilized in public utility cases filed with the Board.

For these same reasons, the Board **FINDS** that the IMM's participation in this proceeding will add measurably and constructively to the scope of this proceeding. Given its unique familiarity, knowledge, and expertise in the functioning of PJM wholesale electric markets, the Board **HEREBY FINDS** that the IMM's ability to contribute to a complete and thorough review of

<sup>9</sup> See, e.g., Joint Reply and Motion for Leave to Reply of the Pennsylvania Public Utility Commission, New Jersey Board of Public Utilities, and Delaware Public Service Commission, FERC Docket No. ER16-372 (Mar. 31, 2017) ("The Joint State Commissions have traditionally been supportive of a strong IMM role . . . ."); see, e.g., Motion for Leave to Answer and Answer of the Organization of PJM States, Inc., FERC Docket No. ER16-372 (May 9, 2017) (providing background of OPSI's continued support of a strong and truly independent market monitor) ("OPSI Answer").

<sup>10</sup> OPSI Answer at 7-8.

<sup>11</sup> OPSI Answer at 8 (quoting Letter to the PJM Board Chairman Howard Schneider from Greg R. White, President of OPSI (July 27, 2012)).

financial information submitted by applicants would significantly and substantially contribute to the Board's understanding and determination of issues in this proceeding. See N.J.A.C. 1:1-16.1(b); Order, In re the Joint Petition of Public Service Electric and Gas Company and Exelon Corporation for Approval of a Change in Control, Docket No. EM05020106 (June 8, 2005). The Board **HEREBY GRANTS** the IMM intervenor status.

The Board has reviewed the IMM's motion for admission pro hac vice and the supporting affidavit of Mr. Mayes. The Board **FINDS** that Mr. Mayes has satisfied the conditions for admission pro hac vice and has submitted to the Board proof of payment to the New Jersey Lawyers' Fund for Client Protection of the fees required by R. 1:20-1(b) and 1:28-2. Therefore, Mr. Mayes is **HEREBY ADMITTED** to practice before the Board pro hac vice in this matter, provided that he shall:

- (1) Abide by the Board's rules and all applicable New Jersey court rules, including all disciplinary rules;
- (2) Consent to the appointment of the Clerk of the Supreme Court as agent upon whom service of process may be made for all actions against each of them that may arise out of his participation in this matter;
- (3) Notify the Board immediately of any matter affecting his standing at the bar of any other jurisdiction; and
- (4) Have all pleadings, briefs and other papers filed with the Board signed by an attorney of record authorized to practice in this State, who shall be held responsible for them and for the conduct of this cause and the admitted attorney therein.

After review of the Act's provisions and review of Staff's recommendations, the Board **ORDERS** that the ZEC program be implemented to comply with the Act. The Board **ALSO DETERMINES** that the ZEC application and the process for filing a redacted and unredacted version of the application is sufficient to meet the Act's requirements and that the program procedures will provide a full and complete record for the eligibility determination of a ZEC applicant. The Board **APPROVES** the ZEC application and **ORDERS** that the ZEC application window is now open and will remain open until December 19, 2018. The Board will post information regarding the applications on its website as the Board receives them.

Persons or entities who seek access to information submitted on a confidential basis under this proceeding must submit such requests, if they have not already done so, to the Board by December 31, 2018. The Presiding Officer will issue a decision on all such requests by January 15, 2019, on the basis of whether a party requesting such access is deemed essential to aiding the Board in its determinations under the Act, pursuant to N.J.S.A. 48:3-87.5(a). If additional information on applications is requested, such requests should be made to Staff for a determination of need. The Board will accept comments on applications through January 31, 2019. The Board **SETS** December 31, 2018 as the deadline for requests for access to

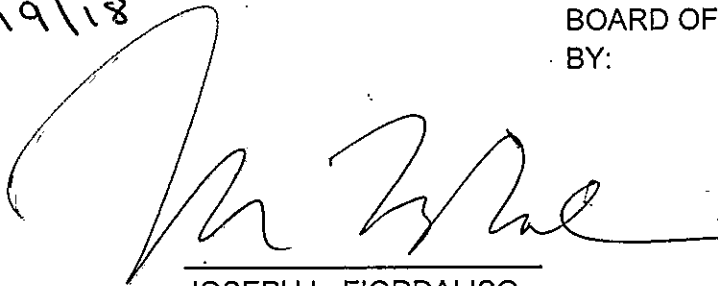
information submitted on a confidential basis, pursuant to N.J.S.A. 48:3-87.5(a), and **SETS** January 31, 2019 as the deadline for comments on applications. The Board also **APPROVES** the implementation schedule and procedural schedule described herein for application eligibility and ranking.



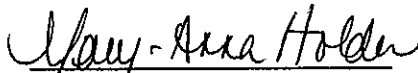
This Order shall be effective on November 19, 2018.

DATED: 11/19/18

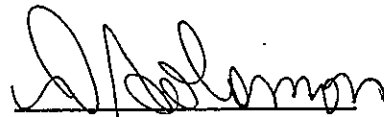
BOARD OF PUBLIC UTILITIES  
BY:



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PRESIDENT



MARY-ANNA HOLDEN  
COMMISSIONER



DIANNE SOLOMON  
COMMISSIONER



UPENDRA J. CHIVUKULA  
COMMISSIONER



ROBERT M. GORDON  
COMMISSIONER

ATTEST:



AIDA CAMACHO-WELCH  
SECRETARY

I HEREBY CERTIFY that the within  
document is a true copy of the original  
in the files of the Board of Public Utilities.

**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**

BPU Docket No. EO18080899

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This CONFIDENTIAL application is for the Zero Emissions Certificate (“ZEC”) program. It is intended to allow any eligible nuclear generation 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

# Zero Emissions Certificate Application

## 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 then 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 \_\_\_\_\_

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

Unit vintage and year Applicant Unit was established: \_\_\_\_\_

Total number of reactor units at this housing facility: \_\_\_\_\_

Total Unit Capacity/Total Unit Size MW): \_\_\_\_\_

Provide a description of operations, services provided, and customer base served by the Unit. Include load growth projections of markets served by the unit:

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Describe the ownership of the Unit and/or statutory authority of the Applicant:

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Annual generation by the Unit anticipated over the next five (5) years (per year) (MW & MWh):

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Average energy the Unit provided into the Energy, Capacity, and Day-ahead Market over the past ten (10) years (MW & MWh):

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Average Unit bid price in the annual Base Residual Auction ("BRA") over the past ten (10) years (\$/MW):

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Total Unit run-time over the past ten (10) years (hours): \_\_\_\_\_

Remaining useful life of the generating Unit: \_\_\_\_\_

Current net book value of the Unit: \_\_\_\_\_

Average annual O&M costs of the Unit over the past ten (10) years (\$):

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Actual investment, on-fuel operating expenses, fuel expenses, taxes, other expenses (including but not limited to all allocated and/or overhead costs), as well as revenues, showing earnings for each of the past five (5) years. Provide supporting documentation for all projected cost allocations.

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Estimated O&M costs of the Unit (annual) for the next five (5) years (\$):

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Value in Use ("VIU") for the unit per IAS 36:

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Date of deregulation of the Unit, Net Book Value of the Unit at date of deregulation, stranded costs claimed by the company at deregulation, and compensation received for stranded costs.

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Annual cash flows for each of the past five (5) years and projected cash flows for each of the next five (5) years. Include forecasts of locational PJM capacity and energy market prices for the Unit and include and itemize expected revenues from PJM capacity and energy markets:

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Provide the following current financial information for the Unit: Utility Plant in Service, Plant Held for Future Use, Accumulated Depreciation (linked to plant and depreciation expense), Depreciation Rates, Depreciation Study, Advanced for Construction, Construction Work in Progress ("CWIP"), allowance for funds used during construction ("AFUDC"), Cash Working Capital, materials and supplies, Consolidated Income Tax Benefits, Accumulated Deferred Income Taxes. Also include Rate of Return, capitalization structure, Return on Equity, Cost of Debt.

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Provide the following current information on the Unit's operation: Revenue Normalization & Annualization, wages and salary expense, payroll taxes, Incentive Compensation, SERP (Supplemental Executive Retirement Plan), severance expense, health benefits, pensions (Rate Base and Expense), Post-Retirement Benefits (Rate Base and expense), injuries and damages expense, insurance expense, meals and entertainment expense, advertising expense, gain on Sale of Property, Taxes other than Income Taxes, Property Taxes, outside services (often includes legal expenses), Depreciation Expense (linked to Unit and accumulated depreciation), depreciation rates, Depreciation study, Federal Income Taxes ("FIT"), State Income Taxes ("SIT"), storm costs, Affiliated Transactions (allocation of costs between affiliates), and Interest Synchronization.

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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. If an applicant chooses to use a risk-adjusted cost of capital in completing the rest of this application, the applicant should also provide the methodology used to determine it, along with supporting documentation and industry benchmarks it deems appropriate, and juxtapose this against original cost of capital.

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List any RMR (Reliability Must Run) contracts under which the facility has operated in the past ten (10) years and/or currently operates:

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Plant personnel count for application year and ten (10) years previous (average):

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Previous and anticipated annual subsidies paid for operation of the Unit (Federal, State, Regional Transmission Operator ("RTO") (\$/yr):

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

Explain in detail the reasoning for applying for the ZECs. Include past and future projections of energy sales, cash flow analysis, and anticipated energy market factors. If applicable, discuss how applicant Unit's production of electricity generation will fulfill BPU's Renewable Portfolio Standards ("RPS") requirements and cost effective transmission to a zero carbon supply.

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Provide certified cost projections over the next three (3) energy years, including operation and maintenance expenses; fuel expenses, including spent fuel expenses; on-fuel capital expenses; fully allocated overhead costs; the cost of operational risks and market risks that would be avoided by ceasing operations to demonstrate that the plant is projected to not fully cover its costs and risks, or alternatively is projected to not fully cover its costs and risks, including its cost of capital, or alternatively its risk-adjusted cost of capital. Please further include comparable costs of capital by all other plants owned or partially owned by all owners of the applying plant.

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Demonstrate that the Unit is financially unviable, i.e., if the Unit's revenue and funding outweighs the avoided costs expenses (operations, training, engineering, materials, fuel, etc.) of the Unit, for each year through 2030. Provide all backup documentation.

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Provide projections of energy, capacity, and natural gas prices used by the Applicant in evaluating the financial condition of each Unit for the next five (5) years.

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What are the PJM LMP and BRA Capacity prices for the next five (5) years in the Zone where the Unit is located? (\$/MWh)

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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.

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Please provide all revenue projections over the next five (5) years, including hedges, relevant fuel price forecasts, 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, relevant PJM forward power market curves, and price forecasts. In forecasting power prices, please show the underlying natural gas price forecasts, load forecasts, and forecasts of the entry and exit of resources in the PJM market.

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

Provide an explanation for how the Unit makes a significant and material contribution to air quality in New Jersey by minimizing emissions that result from electricity consumed in New Jersey, by minimizing harmful emissions that result from electricity consumed in New Jersey, by minimizing harmful emissions that 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.

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Provide a detailed description of the avoided Green House Gas ("GHG") emissions avoided by this Unit's operation and inclusion into the energy and capacity markets. Include what emission sources that will be displaced by this Unit.

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

Provide the cost of market risks avoided by closing the Unit's operation:

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Provide the costs that would be incurred by the company to shut down the Unit, including decommissioning funds:

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Provide the decommissioning funds allocated for the Unit as of the date of the application:

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Demonstrate the impact on ownership and operating company's earning during each of the next five (5) years, assuming that the Unit shuts down. Include any financial impact(s) to the Parent Organization:

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Please explain the avoided costs to the Applicant if the Unit is deactivated. Please include fuel, salary, O&M, capital improvement projects, permitting, and all factors involved. Provide backup documentation.

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## **VI. Miscellaneous**

Provide an explanation of 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.

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Please explain whether receipt of the ZEC 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.

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Explain whether receipt of the ZEC may force New Jersey ratepayers to “double pay” 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.

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

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 be completed to cease the nuclear power plant's operations.
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 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 will eliminate the need for the nuclear power plant to retire.
  - a. Please provide information on all payments received that do not eliminate the need for the nuclear power plant to retire.
4. A detailed list and description of any subsidies or grants **received** from Federal, State sources, or other governmental agency for the applicant Unit. Include the monetary amount received, exemptions for capacity bidding, and/or tax incentives. Include any RTO incentives received in the past ten (10) years.
5. A list and description of any subsidies or grants **anticipated** from Federal, State sources, or any other governmental agency for the applicant Unit. Include the monetary amount received, exemptions for capacity bidding, and/or tax incentives. Include any RTO incentives anticipated to be received in the next five (5) years.
6. A spreadsheet showing the rate impacts of the applicant Unit receiving ZECs to NJ customers across all rate classes.
7. Federal forms: SEC 10-K and 10-Q for the Unit.
8. Copies of certified Base Residual Action ("BRA") bids by the Unit for the past ten (10) years.
9. Copies of information provided by the Unit's owner/operator to the Securities Exchange Commission ("SEC") over the past five (5) years.
10. Copies of all data provided by the Unit's owner/operator to the Federal Energy Regulatory Commission ("FERC") over the past five (5) years.
11. Updated version of the data specific to the Unit and facility provided to the Nuclear Energy Institute ("NEI") when responding to their latest survey.
12. Copies of all data provided by the Unit's owner/operator to the U. S. Environmental Protection Agency ("EPA") over the past five (5) years.
13. Copies of all filings by the Unit's owner/operator with the U. S. Nuclear Regulatory Commission ("NRC") over the past five years,

14. Copies of submissions of documentation (permits, enforcement actions, etc.) by the owner/operator regarding the Unit to the DEP to demonstrate all standards and limits are being met should be required.
15. Transcripts of all analyst calls along with other information provided to investors or analysts over the past five (5) years regarding the Unit.
16. A spreadsheet detailing annual output/supply of the Unit to all markets over the past ten (10) years, broken down by year and market.
17. A list of active and anticipated contracts for energy supply by the Unit. Include capacity contracted, type of market, length of obligation, and customer.
18. Five-year capital improvement plan for the Unit, equipment, and operations.
19. 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.
20. A spreadsheet showing MWhs produced by the Unit over each of the past five (5) energy years and projected for the next five (5) energy years.
21. Supporting air dispersion modeling results and supporting files regarding the assertion that the Unit makes a significant and material contribution to the air quality in New Jersey.
22. A detailed projection of energy resources that would supplement the lost capacity in PJM if the Unit were to shut down.
23. Current and historical financial analyses conducted by the Unit's owner/operator for each Unit for the past three (3) years, including supporting workbooks and input assumptions.
  - a. Cost of generation
  - b. Cost of capital
  - c. Discounted cash flow analysis
24. 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.
25. Status of decommissioning funds for the Unit, including decommissioning status reports filed with the NRC.
26. Amount of shortfall on decommissioning funds resulting from early retirement.
27. Planned refueling outages for the Unit over the next three (3) years.
28. Projections of fuel, operating, long term fuel storage, and capital costs, including uranium fuel pricing for the Unit through 2030.

29. Payroll spending for the Unit's onsite employees.
30. Copies of hedges or other financial instruments used by the Company to mitigate market exposure of the Unit.
31. A listing of Capacity payments received from PJM for the Unit over the past ten (10) years.
32. A detailed five (5) year O&M plan and expenses.
33. Shareholder payout over the past ten (10) years.
34. Certification that all equipment located at or servicing the nuclear power Unit must be as stringent as the standards and emission limits in N.J.A.C. 7:27 et. seq.
35. A list of all environmental permits, investigations, and remedial actions planned, ongoing and completed.
36. 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.
37. A list of any enforcement or legal actions taken at the Unit's facility.
38. Certification of accuracy of application by applicant Company Officer.