STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES
BEFORE PRESIDENT JOSEPH L. FIORDALISO

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| I/M/O THE APPLICATION OF PSEG NUCLEAR, LLC FOR THE ZERO EMISSION CERTIFICATE PROGRAM – SALEM UNIT 1 | ) ) ) ) | |
| I/M/O THE APPLICATION OF PSEG NUCLEAR, LLC FOR THE ZERO EMISSION CERTIFICATE PROGRAM – SALEM UNIT 2 | ) ) ) ) | BPU DOCKET NOS. ER20080557, ER20080558 and ER20080559 |
| I/M/O THE APPLICATION OF PSEG NUCLEAR, LLC FOR THE ZERO EMISSION CERTIFICATE PROGRAM – HOPE CREEK UNIT | ) ) ) ) | |

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INITIAL BRIEF OF THE NEW JERSEY
DIVISION OF RATE COUNSEL

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# INTRODUCTION

In this proceeding the Applicants PSEG Nuclear LLC ("PSEG") and Exelon Generation Company LLC ("Exelon") have asked the Board to award them subsidies in the form of "Zero Emissions Credits" ("ZECs") for the Salem I, Salem II and Hope Creek nuclear power plants for a second three year period. The Applicants were previously awarded ZECs in the amount of $10/MWh for an initial three year period, which allowed them to collect approximately $300 million per year for these unregulated generating plants. They seek the same amount for the next three years, arguing that they meet the criteria set forth in the statute allowing the Board to award ZECs, which requires the Applicants to demonstrate that their financial situation is such that without ZEC subsidies they will be forced to close the plants within the next three years and that if they do so, specific significant environmental harms will result. For the reasons set forth in this brief, Rate Counsel maintains that the Applicants have failed to meet their burden of proving that they meet the statutory criteria and no ZECs should be awarded. If the Board does find that some ZEC subsidy has been justified, however, the statute permits the award of less than $10/MWh and the record does not support awarding the full amount sought by the Applicants.

The Applicants have presented financial information to support their position and argue that they need substantially more than the statutory maximum subsidy. Nevertheless, Applicants say that they will continue to operate the plants if the Board grants them the statutory maximum subsidy, although they do not guarantee that they will keep the plants open. At the outset, this raises questions about whether ZECs should be awarded. If the award of ZECs does not guarantee continued operation of the plants, ratepayers will continue to be at the mercy of PSEG's corporate decision makers, and it is not clear that the Legislature's intent will be realized or that continued subsidies are just and reasonable.

Further, closer examination of the information submitted makes it clear that the Applicants have overstated their costs and understated their revenues. On the cost side, a substantial percentage of the "shortfall" claimed by the Applicants is attributed to their quantification of operational and market "risks" that they claim they will face if these plants continue to operate. The Applicants' estimates of market risks assume that the subsidies should protect them from nearly all of the risks associated with their participation in wholesale markets. However, those risks are minimal, as the Applicants admit that their hedging practices protect them from risk in the energy market and that they are likely to clear the capacity market despite recent rules established in the PJM markets aimed at state-sponsored resources. The Applicants' "quantification" of operational risks is based not on specific calculations of anticipated costs or events, but on formulaic additions of risk adders to the units' projected costs. For both operational and market risks, the Applicants have considered only "downside" risks, ignoring the possibility that the nuclear plant costs could be lower or that nuclear plant revenues could be higher. In addition to the inappropriateness of asking ratepayers to assume the "downside" risks for these deregulated entities, ratepayers would not share in the "upside" if the plants prove more profitable than expected. Thus, the Applicants' "costs of risks," which form the bulk of the subsidy they claim to need, are significantly overstated.

The Applicants' estimates of costs are also overstated in that they assume that any capital expenditures made by these plants should be accounted for in the same year they are incurred. This is inconsistent with basic accounting principles and would create significant intergenerational inequities. It also significantly mitigates the very risks that the Applicants claim they will face if they invest further in these plants without a guarantee of future profits sufficient to cover those expenditures. In addition, the Applicants have included in the ZEC calculations

the Spent Nuclear Fuel disposal costs that are not actually being incurred, and costs of Support Services and Overhead that will not be avoided if the plants are closed.

While the Applications inflate the units' future costs, they understate future revenues. The Applicants' estimated energy revenues do not reflect recent upward trends in expected energy price futures. Their estimated capacity revenues reflect prices that are lower than the capacity proxy price that was approved by the Board in its most recent Basic Generation Service ("BGS") proceeding for suppliers to incorporate in their bids in the BGS auction and lower than actual historical prices from the most recent capacity auction. They are also lower than the prices the Board is utilizing in its recent Offshore Wind Bid solicitation, or the prices PSEG itself advocated in the Board's ongoing Resource Adequacy Proceeding. Applicants have also failed to include hedging revenues and tax benefits from recent tax changes in their calculations.

In addition to the criteria stated in the ZEC law, the Board must carry out its statutory obligation to assure that utility rates are just and reasonable. In addition to the absence of a demonstrated need for subsidies, an award of ZECs would be unjust and reasonable for other reasons. These plants are deregulated. Ratepayers have paid hundreds of millions of dollars in stranded costs for these units as part of a transaction that transferred the risks of ownership to these unregulated entities. Ratepayers are now being asked to fund a virtual guarantee against downside risks, with no right to share in profits and no guarantee that the plants will continue to operate. This is neither just nor reasonable. The unreasonableness of the Applicants' requests for subsidies is only exacerbated by current economic conditions and the already high rates paid by New Jersey's electric ratepayers. Further, the current political climate is likely to lead to policies that favor nuclear plants. If this is the case, it will not be easy for the Board to claw back the resulting windfall for the Applicants.

Rate Counsel is confident that a careful review of the record will lead the Board to conclude that no subsidy is needed. However, if the Board disagrees with this conclusion it should award a subsidy that is substantially less than the statutory maximum. The statute purports to value the ZECs based on the "emissions avoidance benefits" of the plants. Rate Counsel has offered testimony that demonstrates that value and those benefits for emissions avoided in New Jersey. The Applicants' calculations look to the avoided emissions in the Eastern Interconnection – an area that stretches to the Mississippi River and beyond. Once again, they have inflated their calculations to increase the subsidy to be paid by New Jersey customers. It is undisputed that the Board may reduce the ZEC charge in this second ZEC period. It should do so consistent with the Act and if a ZEC is awarded it should at most be reduced to a value consistent with the Board's consultant's recommendations, and a value that does not exceed the social cost of carbon for the emissions avoidance benefits for New Jersey customers.

## BACKGROUND

### A. Utility Restructuring and Stranded Costs.

Until the late 1990's, electric public utilities were regulated by the Board of Public Utilities under rate base/rate of return, cost-of-service regulation, in which utilities were permitted to recover prudently-incurred costs and a return on capital investment. Customers purchasing electricity in New Jersey were served by the electric public utilities, investor-owned, vertically-integrated monopolies that provided generation, transmission, distribution and billing/collections services. On February 9, 1999, the New Jersey Legislature passed the Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49 et. seq. ("EDECA"), which mandated the restructuring of the electric and natural gas industries in the State.

With the goal of lowering prices through competition, EDECA mandated that the Board implement, among other things, a statewide restructuring of the State's four electric public utilities. Pursuant to EDECA, investor-owned electric utility companies divested most of their generation fleet, but continued to transmit and deliver power to customers. The divestiture of generation plants created apparent stranded costs because the value of some plants on a utility's books was higher than what the electric utility received when divesting its asset. Unlike the other electric utilities in the State who divested their generation assets to unaffiliated entities, PSE&G divested its generation fleet, including PSE&G's ownership share of Salem 1 and 2 and Hope Creek nuclear plants to its affiliate, PSEG Power.[1] In re Public Service Elec. And Gas Company's Rate Unbundling, Stranded Costs and Restructuring Filings, 330 N.J. Super. 65 (App. Div. 2000). Because PSE&G's generation plants were not sold in the open market, the plants' valuation was administratively determined by the Board. In re Public Serv. Elec. & Gas Company's Rate Unbundling, 167 N.J. 377 (2001), aff'd 167 N.J. 377 (2001). EDECA also permitted stranded costs to be recovered from ratepayers and PSE&G was ultimately permitted by the Board to recover approximately $2.9 billion in stranded costs. I/M/O Public Service Electric and Gas Company's Rate Unbundling, Stranded Costs and Restructuring Filings, BPU Docket Nos. EO97070461, EO97070462, EO97070463, Final Decision and Order at 104 (August 24, 1999), aff'd 330 N.J. Super. 65 (App. Div. 2000), aff'd 167 N.J. 377 (2001) ("PSE&G Unbundling Order").

The terms and conditions of the divestiture were based on a non-unanimous Stipulation that was approved by the Board with certain modifications and clarifications, over the objections of Rate Counsel and other parties. PSE&G Unbundling Order at 100-102. The Board used the

[1] Applicant PSEG Nuclear is a subsidiary of PSEG Power. See PSEG corporate website at: https://corporate.pseg.com/aboutpseg/companyinformation/thepsegfamilyofcompanies/psegpower.

non-unanimous Stipulation as a framework for a resolution in part because it reflected a negotiated resolution of the complex and technical issues involved in that proceeding. Id. The key elements of the resolution, including the transfer of generation assets, were specified in the Board's findings and directions, which included the following:

> 27) In order to ensure that PSE&G does not retain any risks or liabilities associated with the electric generation business after the Generating Facilities have been transferred, the Board hereby orders that all contracts (except for the NUG contracts) associated with the electric generating business, including, but not limited to, wholesale electric purchase and sales agreements, fuel contracts, real and personal property interests, and other contractual rights and liabilities, be transferred from PSE&G to [PSEG Power] simultaneous with the transfer of all generating assets, and substitute [PSEG Power] as the party(s) to any such contracts.

PSE&G Unbundling Order at 123 (emphasis added). This language reflects that a fundamental element of the transaction was a complete transfer of the generation assets, including the risks of ownership and operation. In other words, PSEG Power's assumption of those risks was recognized as an essential element of a transaction that allowed them to earn unregulated returns on the assets being transferred.

By 2005 it became clear that the generation plants that had been transferred to PSEG Power in 2000 had been grossly undervalued. The deregulated plants were making far more money than expected in the wholesale markets, undermining the claim that any costs were "stranded." During the PSEG/Exelon merger case filed in February of 2005, Board Staff's experts filed testimony showing the appreciation of the plant value and recommended:

> In light of this substantial increase in the value of the generation plants transferred, Overland recommends that PSE&G customers be allocated some portion of the merger synergy savings otherwise attributable to PSEG Power operations.[2]

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[2] I/M/O the Joint Petition of Public Service Electric and Gas Company and Exelon Corporation for Approval of A Change in Control of Public Service Electric and Gas Company, and Related Authorizations, BPU Docket No. EM05020106, OAL Docket No. PUC-1874-05

For many years, the nuclear units' costs fell well below market prices, and PSEG Power made substantial profits from the plants, in addition to the "stranded costs" being collected from ratepayers. *RC-1,* p. 18. PSE&G's collection of "stranded costs" payments continued for fifteen years, finally ending in 2016. See, Public Service Electric Company SEC 10K filed February 26, 2016 (period: December 31, 2015) p. 103.

After many uninterrupted years of substantial profits, market forces have reduced the profits PSEG Power was able to earn from its nuclear units. Applicants asked ratepayers to assume the risks that PSEG Power voluntarily undertook as part of the electric industry restructuring, and ratepayers have begun to do so through their payment of ZECs during the first eligibility period.. Despite the prior agreement relieving ratepayers from the risks of operating these plants, he ZEC payments have virtually eliminated the risks of ownership for the Applicants, without providing any opportunity for ratepayers to share in the potential profits.. This result is contrary to the intent of EDECA and the balance of benefits and obligations relied upon by the Board when it approved restructuring and required ratepayers to pay $2.9 billion in stranded costs in 1999.

**B. Competitive Wholesale Electricity Markets.**

In order to determine whether any nuclear unit requires a subsidy, it is important to first understand the income the unit receives from regional wholesale electricity markets. New Jersey is part of a Regional Transmission Organization ("RTO"), PJM Interconnection ("PJM"). An RTO is an independent entity operating in a specific regional configuration, with operational authority for all transmission facilities under its control and exclusive authority for maintaining

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Joint Direct Testimony of Howard E. Lubow, Gregory S. Oetting, Dr. J. Robert Malko on Behalf of Staff of the New Jersey Board of Public Utilities (November 28, 2005), p. 13.

the short-term reliability of the grid it operates. 18 CFR §35.34(j). PJM is one of several RTOs in the United States. PJM consists of all of New Jersey as well as all or parts of twelve other states and the District of Columbia.[3] PJM serves 65 million people with a peak load of 165,492 MW and 180,086 MW of generating capacity.[4] In addition to planning and operating the transmission system within its territory, PJM runs three separate markets, an Energy Market, a Capacity Market, and an Ancillary Services Market. Nuclear units derive income from each of these three markets.

Generators typically receive the bulk of their compensation from the Energy Market. Energy markets address the real time electricity needs of the system. Generators can sell energy through bilateral contracts, or through organized markets. PJM operates electricity "spot markets" in which generators sell and retail electricity providers buy energy for immediate delivery. Resources submit bids, and the cheapest resource will "clear" the market first, followed by progressively more expensive bids until demand is met. When supply reaches demand, all successful bidders receive the price of the last resource accepted, known as the market clearing price. [5] Because nuclear units are relatively unable to vary output and generally run continuously at maximum output, they generally bid as price-takers in energy markets to ensure that they can continuously sell their energy, regardless of the clearing prices in either the day-ahead and real-time energy market auctions. The Energy Market represents roughly [**BEGIN PSEG CONFIDENTIAL**] ████ [**END PSEG CONFIDENTIAL**] of the units' revenue. *Confidential Application Response [Unit] ZECJ-FIN-0025.*

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[3] https://www.pjm.com/about-pjm/who-we-are.aspx

[4] https://www.pjm.com/~/media/about-pjm/newsroom/fact-sheets/pjm-at-a-glance.ashx.

[5] PJM Learning Center material on the Market for Electricity, available at https://learn.pjm.com/electricity-basics/market-for-electricity.aspx.

Since bids generally approximate the marginal cost of production of the highest successful bidders, units with lower marginal costs typically generate higher operating profits than units with comparatively higher marginal costs. Natural gas prices have a major influence on the price that generators will receive for their output, especially in periods of relatively strong or weak demand. Therefore, changes in the price of natural gas translate into changes in the wholesale price of electricity.[6]

The nuclear units receive roughly [**BEGIN PSEG CONFIDENTIAL**] ███ [**END PSEG CONFIDENTIAL**] of their revenue from the Capacity Market. *Confidential Application Response [Unit] ECJ-FIN-25.* Capacity represents a commitment of resources to be delivered on demand when needed during an emergency, or pay a significant penalty for non-performance. The Capacity Market is a three year forward looking market in which a generator agrees to provide a specific number of megawatts at a specified price generated by a PJM run auction process, called the Base Residual Auction ("BRA"). Generators throughout PJM, or with the ability to deliver energy into PJM, submit bids at a set price for a specific amount of megawatts. The three-year period is intended to provide long-term price signals to attract sufficient generation infrastructure investments to assure adequate capacity within PJM.[7]

The BRA is usually held in May of each year and winning bidders are required to provide electricity on demand for an energy year commencing in June three years later. For this Eligibility period, the PJM capacity auctions for 2022/2023 and 2023/24 energy years have not been held due to delays at PJM as a result of uncertainty regarding the Federal Energy

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[6] PJM Learning Center material on the Market for Electricity, Natural Gas $ Calculator, available at https://learn.pjm.com/electricity-basics/market-for-electricity/gas.aspx.

[7] See PJM Learning Center materials on the "Capacity Market (RPM)," available at: https://learn.pjm.com/three-priorities/buying-and-selling-energy/capacity-markets.aspx.

Regulatory Commissions' rulings on PJM's Minimum Offer Price Rule ("MOPR") which was only resolved in late 2020.[8]

The nuclear units also participate in the Ancillary Services market, in which generators can offer services that help balance generation and load on the PJM system.[9] The nuclear units receive **[BEGIN PSEG CONFIDENTIAL]** [redacted] **[END PSEG CONFIDENTIAL]** from the Ancillary Services market. *Confidential Application Response [Unit] ECJ-FIN-25.*

PJM relies on these markets to ensure reliable electrical service throughout the RTO. To that end, PJM is constantly reviewing clearing prices in the Capacity and Energy Markets to determine if those prices are sufficient to fully compensate generators in PJM. PJM has also taken other actions to protect the reliability of its system. As explained above, any unit that clears the PJM BRA is committed to provide energy when demanded three years in the future, and there are penalties for non-performance. After the subpar performance by generators during the 2014 Polar Vortex, PJM instituted Capacity Performance, which provides significant penalties for units failing to provide energy when called upon in the Energy Year in which they committed through the Capacity Market.[10], PJM also has the ability to enter into a "reliability must run" ("RMR") contract on any unit within PJM. Before retiring any unit, the owner of the unit must inform PJM of its intention to close. If PJM decides that the generating unit is needed for reliability, PJM can require the unit to remain in operation beyond its proposed retirement date—

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[8] See PJM Presentation on 2022-2023 BRA Schedule, side 6, available at: https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20201202/20201202-item-05a-2022-2023-base-residual-auction-schedule.ashx.

[9] See PJM Learning Center materials on the Ancillary Services Market, available at: https://learn.pjm.com/three-priorities/buying-and-selling-energy/ancillary-services-market.

[10] See PJM InterconnectionInterconnection, Strengthening Reliability: An Analysis of Capacity Performance (June 20, 2018), available at: https://www.pjm.com/-/media/library/reports-notices/capacity-performance/20180620-capacity-performance-analysis.ashx.

typically until system upgrades can make the unit unneeded. The generator is compensated for staying open through the RMR contract. *T80:L7-23.*[11]

### C. The ZEC Legislation.

The ZEC Act, signed into law on May 23, 2018, directed the Board to create a mechanism for the issuance of ZECs, which represent "the fuel diversity, air quality and other environmental attributes" of one megawatt-hour of nuclear generation. N.J.S.A. 48:3-87.4. Owners of nuclear power plants were required to apply to the Board no later than December 19, 2018 to be selected to receive ZECs. N.J.S.A. 48:3-87.5(c). In order to receive ZECs, applicants were required to meet specific criteria, which are discussed in more detail below. N.J.S.A. 48:3-87.5(e).

The selected units became eligible to receive ZECs for an initial eligibility period that runs through the end of the energy year when the unit was selected, and three additional energy years thereafter. N.J.S.A. 48:3-87.5(h)(1). The selected units may then be re-certified for additional eligibility periods of three energy years. N.J.S.A. 48:3-87.5(h)(2).

Beginning with the initial qualification period, the selected units receive ZECs based on the actual amount of megawatt-hours of electricity they generate. N.J.S.A. 48:3-87.5(g)(2). The unit owners are compensated for their ZECs with the proceeds of a non-bypassable ZEC paid by the customers of the State's electric utilities. The ZEC statute established a rate 0.4 cents per-kilowatt hour, or $4.00 per megawatt-hour. N.J.S.A. 48:3-87.5(j)(1). Since the subsidies are limited to generation providing 40% of the State's retail sales, this equates to a subsidy of $10 per megawatt-hour paid to the units receiving ZECs. N.J.S.A. 48:3-87.5(g)(1)

[11] Transcript citations in this brief are based on the transcript provided to Rate Counsel on March 20, 2021.

For the first eligibility period, the ZEC Act made no provision for the Board to set the ZEC charge at an amount lower than 0.4 cents per kilowatt-hour. For the subsequent eligibility periods, however the ZEC Act provides that the Board may modify the charge if the Board finds that a lower charge will be sufficient to prevent the retirement of the selected units. N.J.S.A. 48:3-87.5(j)(3)(a). Such determinations must be made by the Board no later than 13 months prior to the applicable eligibility period. Id.

If a selected unit receives direct or indirect payments as a result of state or federal action for its "fuel diversity, resilience, air quality or other environmental attributes" the amount of such payments is deducted from the amount that would otherwise be paid for that unit's ZECs. N.J.S.A. 48:3-87.5(i)(3). Selected units are required to certify annually they will operate at full capacity except for maintenance and refueling outages, for the duration of the then current eligibility period. N.J.S.A. 48:3-87.5(h)(3). However, the ZEC statute included provisions excusing a unit from performance for reasons that include "significant" new taxes or assessments, any state or federal law that materially reduces the value of ZECs, the Board's exercise of its discretion to reduce the per-kilowatt-hour charge provided in the ZEC statute, or required capital expenditures exceeding $40 million. N.J.S.A. 48:3-87.5(k)(1).

### D. The First ZEC Proceeding.

The first ZEC proceeding was initiated on December 19, 2018 when PSEG and Exelon filed applications to receive ZECs on behalf of the Salem I, Salem II, and Hope Creek nuclear generation units. In addition to Rate Counsel, which was an Intervenor as of right, the PJM Independent Market Monitor (IMM) also filed for and was granted intervenor status. Rate Counsel and the IMM were granted access to confidential information. Several other entities were granted participant status without access to confidential information. Following a discovery

period, Rate Counsel, and the IMM and participants the New Jersey Large Energy Users Coalition ("NJLEUC") and the PJM Power Producers Group ("P3") all filed comments and supporting certifications opposing the issuance of ZECs. Responsive comments were filed by PSEG, and additional comments were filed by several parties. On December 18, 2019 the Board approved the selection of Levitan & Associates ("Levitan") to assist the Board's Staff in its review of the applications. On April 8, 2019 Levitan issued a confidential report in which it found that all three plants were profitable without subsidies.

No evidentiary hearings were held in the first ZEC proceedings. Instead, the Applicants' eligibility for ZECs was reviewed by an "Eligibility Team" that included representatives of Staff, the New Jersey Department of Environmental Protection ("DEP"), and Levitan. The results of that review were presented to the Board in three confidential memoranda from Staff dated April 17, 2019. The Staff memoranda reached the same conclusion as Levitan—that none of the units met the financial criteria for receiving ZECs.

On April 18, 2019, the Board issued an Order rejecting the analysis of its consultants and its Staff and granting ZECs to all three units for the initial eligibility period. 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 Nos. E018080899 et al., Order Determining Eligibility of Hope Creek, Salem 1 and Salem 2 Nuclear Generators to Receive ZECs (Apr. 18, 2020). Rate Counsel appealed that Order, arguing that it should be reversed as arbitrary and capricious because the record did not support the Board's conclusion that the applicants satisfied the statutory criteria, and because the Board failed to ensure that the ZEC charge established in the statute was just and reasonable.

On March 19, 2021 the New Jersey Superior Court, Appellate Division issued a decision affirming the Board's Order. I/M/O the Implementation of L. 2018, C. 16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants, Dkt. No. A-3939-18 (N.J. Super. App. Div. March 19, 2021) ("ZEC I App. Div."). The Appellate Division rejected Rate Counsel's contention that the Board's decision was arbitrary and capricious, finding that the Board "properly considered the applicants' operational and market risks, spent fuel costs, support services costs, fully allocated overhead costs, and capital expenditures" and had "also considered the [Eligibility Team's] recommendations, the experts' independent analyses, the comments, among other information, and [had come] to the reasoned conclusion that each plant is projected to not fully cover its costs and risks, and will cease operations within three years absent a material financial change, in satisfaction of N.J.S.A. 48:3-87.5(e)(3)." Id., Slip op. at 38. The court found that Rate Counsel's argument that the Board had improperly considered factors beyond the statutory criteria was "unsupported by the record" because there was "nothing in the Board's decision to indicate that it weighed these factors more heavily than the statutory criteria.". Id. at 40. Further the court found that "[t[he extensive record in this case belies Rate Counsel's contention that the Board's decision is based on a fear that regardless of whether the eligibility criteria were met PSEG Nuclear would close the plants if it did not get subsidies for all three units." Id.

The court also held that the Board was not required to harmonize the ZEC Act with the Board's obligation under N.J.S.A. 48:2-21(b) to assure that utility rates are just and reasonable. Id. at 41. The court found that the Legislature had "carefully limited the Board's authority to alter the $0.004-per-kilowatt-hour charge" and that the Board had no "authority to override the Legislature's imposition of the $0.004-per-kilowatt-hour charge at the time of its initial eligibility

determinations." Id. at 44. The court further found that it was "clear from the plain language of N.J.S.A. 48:2-21(b) that "it applies to rate hearings involving public utilities either initiated on the Board's own motion or by complaint." Id. at 45. With regard to the New Jersey Supreme Court's Industrial Sand decision, the court found that "[t]he only relevant takeaway … is that aggrieved parties may seek relief via other remedies, either 'in the legislative halls' or in the courts by way of an action to restrain enforcement of a statute alleged to be unconstitutional, where a rate is set either unreasonably low and confiscatory, or unreasonably high and extortionate upon the public." Id. at 47, citing In re Proposed Increase Intrastate Industrial Sand Rates, 66 N.J. 12, 23-24, 29 (1974). Finally, the parties' remaining arguments were summarily rejected as "without sufficient merit to warrant discussion in a written opinion." ZEC I App. Div., slip op. at 47.

**E. The Second ZEC Proceeding.**

On October 1, 2020 PSEG and Exelon filed applications to receive ZECs for the second eligibility period for the Salem I, Salem II and Hope Creek units. In addition to Rate Counsel, the IMM, NJLEUC, and P3 were granted intervenor status. PSEG's affiliate Public Service Electric & Gas Company ("PSE&G") was granted participant status. Only Rate Counsel and the IMM were granted access to confidential information.

At its October 14, 2020 Open Public Meeting the Board considered and approved Staff's recommendation to select Levitan to assist the Board's Staff in evaluating the eligibility of the three nuclear units for ZECs during the second eligibility period. On January 19, 2021 the Board issued public and confidential versions of reports containing Levitan's preliminary findings regarding the eligibility of each of the three units for ZECs. The reports concluded that the units

were not profitable without ZECs but that none of the units required the statutory maximum $10 per megawatt-hour subsidy. On January 29, 2021, written testimony was submitted as follows:

- PSEG submitted the written testimony of Daniel Cregg, Executive Vice President and Chief Financial Officer of Public Service Enterprise Group, and Carl Fricker, Vice Pressident – Power Operations Support for PSEG Power.
- Rate Counsel submitted the testimony of its consultants Andrea C. Crane and Maximilian Chang opposing the issuance of ZECs.
- The IMM submitted a report certified to by its President, Joseph Bowring, which concluded that the units did not qualify for ZECs.

Written cross-examination questions directed to the witnesses identified above and to Levitan concerning its preliminary reports were propounded by various parties, and the witnesses and Levitan provided responses. An evidentiary hearing, with President Fiordaliso presiding and Commissioners Mary-Anna Holden, Dianne Solomon, Upendra J. Chivukula, and Bob Gordon in attendance, was held on March 8, 2021.

## ARGUMENT

### I. IN ORDER TO AWARD ZECS, THE BOARD MUST FIND THAT THE APPLICANTS HAVE MET ALL OF THE STUATUTORY QUALIFICATION CRITERIA, AND THAT AN AWARD OF ZECS WOULD RESULT IN JUST AND REASONABLE RATES.

In the context of the ZEC Act, the elements required to entitle Applicants PSEG and Exelon to receive ZECs are found in N.J.S.A. 48:3-87.5(e). This provision, states that, in order to be eligible for ZECs a nuclear plant "shall" meet five enumerated requirements

1. The plant must be licensed to operate by the United States Nuclear Regulatory Commission through at least 2030;

2. The applicant must "demonstrate to the satisfaction of the [B]oard" that the plant "makes a significant and material contribution to the air quality in the State by minimizing emissions that result from electricity consumed in New Jersey" and that retirement of the plant would "significantly and negatively affect New Jersey's ability to comply with State air emission reduction requirements;"

3. The applicant must "demonstrate to the satisfaction of the [B]oard" that the plant's "fuel diversity, air quality and other environmental attributes" are at risk of loss because, based on projected financial results, the plant "will cease operations within three years unless the nuclear plant experiences a material financial change;"

4. The applicant must certify that the plant does not receive other direct or indirect payments that eliminate the need for a subsidy and

5. The applicant must submit an application fee in an amount to be determined by the Board, up to $250.000.

N.J.S.A. 48:3-87.5(e).

Since the word "and" rather than "or" appears between the fifth requirements, it is clear that there are five separate requirements, all of which must be met in order to receive ZECs. Further, the statute explicitly requires the Applicants to "demonstrate" the second and third criteria "to the satisfaction of the Board." Thus, if the Applicants proofs are insufficient to establish the second and third criteria, or if any of the other three criteria are not met, the Board must deny ZECs. The Board may not remedy a deficiency as to any one factor by balancing the deficiency against record on any of the other factors, or by considering factors beyond the five criteria specified in the statute.

It is important to note that the statutory criteria do not include reliability. While the criteria include a determination that a nuclear plant makes a contribution to air quality in the State, N.J.S.A. 48:3-87.5(e)(2), none of the five criteria directs the Board to determine the plant's impact on reliability. As explained at the evidentiary hearing and discussed further below,

assuring that there is adequate generating capacity to "keep the lights on" is the responsibility of PJM. *T80:L7-23; T82:5-17; T214:L23 to T215:L6.* Further, the ZEC Act makes no provision for the Board to balance the interests of ratepayers against those of the Applicants. Such balancing is required when the Board considers matters involving the State's public utilities, because the Board's statutory responsibilities include consideration of the financial health of the entities that provide regulated service. See, N.J.S.A. 48:3-16, 48:3-7, & 48:3-9. The Applicants, however, are not public utilities. The Board's obligation under N.J.S.A. Title 48 to investigate and regulate the financial health of public utilities simply does not apply to unregulated entities such as the Applicants. The Board's responsibility with regard to these entities in this matter is to determine whether they have demonstrated the specified criteria for receiving ZECs.

The Applicants' proofs regarding the statutory criteria are discussed in the sections below. As detailed in Point II below, the Applicants have failed to establish that without ZECs, the plants "will cease operations within three years unless the nuclear plant experiences a material financial change …" N.J.S.A. 48:3-87.5(e)(3). Also, as detailed in Point III below, the Applicants have overstated the environmental benefits that would be lost in the event of a closure. N.J.S.A. 48:3-87.5(e)(2) & (3).

In addition, the Board must meet its explicit statutory mandate to ensure that the rates it sets are just and reasonable. See, N.J.S.A. 48:2-21(b) (which obligates the BPU to ensure that any rates it approves are "just and reasonable") and N.J.S.A. 48:3-1 (which prohibits utilities from charging rates that are unjust or unreasonable). This mandate has its foundation in fundamental principles of constitutional law. As the New Jersey Supreme Court has held:

> The system of rate regulation and the fixing of rates thereunder are related to constitutional principles which no legislative or judicial body may overlook. For if the rate for the service supplied be unreasonably low it is confiscatory of the utility's right of property, and if unjustly and unreasonably high (bottomed as it is

> on the exercise of the police power of the state), it cannot be permitted to inflict extortionate and arbitrary charges upon the public. And this is so even where the rate or limitation on the rate is established by the Legislature itself.

In re Proposed Increased Intrastate Industrial Sand Rates, 66 N.J. 12, 23-24 (1974) (citations omitted). See also, State v. Trenton, 97 N.J.L. 241, 247 (E. & A. 1922) ("rates fixed by legislation must be reasonable, and to that end must be subject to judicial review"). Nothing in the ZEC Act suggests an intent to change the Board's fundamental obligation to assure just and reasonable rates, and such an interpretation would violate the constitutional principles articulated in Industrial Sand.

In this regard, it is immaterial that the entities seeking to receive ZECs are not regulated public utilities. In re Redi-Flo Corp., 76 N.J. 21, 40-41 (1978) (holding that N.J.S.A. 48:2-21(d) defines a rate from the standpoint of the consumer and that any increase that causes an increase in the consumer's out-of-pocket expenditure is a "rate increase" under the statute). See also, In re Board's Investigation of Local Exchange Carrier Intrastate Access Rates, 2012 N.J. Super Unpub., LEXIS 1430 at *42 ("The requirement for 'just and reasonable' rates applies whether the BPU is setting rates under a traditional methodology or under a plan of alternative regulation"(citations omitted)). The Board must ensure that an award of ZECs does not result in unjust and unreasonable rates. As discussed in Point IV below, the one-sided transaction inherent in an award of ZECs in neither just nor reasonable to ratepayers.

Finally, although Rate Counsel maintains that the record does not support an award of ZECs, if the Board is inclined to grant ZECs, it must consider granting a subsidy lower than $10 per megawatt-hour. N.J.S.A. 48:3-87.5(j)(3)(a), which applies for all except the first ZEC eligibility period, provides for the Board to "ensure that the ZEC program remains affordable to New Jersey retail distribution customers," by reducing the per kilowatt-hour ZEC charge

"provided that the board determines that a reduced charge will nonetheless be sufficient to achieve the State's air quality and other environmental objectives by preventing the retirement of the nuclear power plants that meet the [ZEC Act's] eligibility criteria …." This provision, along with the Board's statutory obligation to assure that rates are just and reasonable, requires the Board to determine the minimum ZEC subsidy necessary to keep the plants in operation.

## II. THE APPLICANTS HAVE NOT SHOWN THAT THEY MEET THE FINANCIAL CRITERIA FOR AN AWARD OF ZECS.

At the outset, it is important to note one important difference in the Applications now before the Board compared to those that were considered in the first ZEC proceeding. PSEG and Exelon have presented cost and revenue projections purporting to show shortfalls substantially in excess of the $809.5 million in ZEC subsidies that the Board could award. The Applicants' cost projections purport to show a shortfall of **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]**, equating to a required subsidy of approximately **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** per megawatt-hour. *RC-1,* p. 35.[12] If one accepts the Applicant's costs projections as accurate, that should mean that the plants will shut down whether or not they receive ZECs, and indeed they have not committed to continued operation even if full ZECs are awarded. *PS-5*, Response to PJM-PSEG-CF-0018; *T23:L23 to T24:L8; T27:L1-16.* Nevertheless PSEG has stated publicly that "we would accept $10 now is because that's all the state can do."*PS-5*, Response to PJM-PSEG-CF-0018. Thus, it appears the Applicants do not need subsidies at the level indicated by PSEG's cost projections

[12] On January 22, 2021 PSEG provided updated cost and revenue projections in response to Staff discovery requests. These updates were provided late in the discovery process and Rate Counsel did not have sufficient time to analyze the updates in detail. However, the updates did not materially affect the overall recommendations contained in Ms. Crane's testimony. In addition, the updates **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** per megawatt-hour, still well above the subsidy of $10 that PSEG claims it will accept.

and can continue to operate at a lower amount for at least some period of time. *RC-1,* p. 35. The Board should take this into consideration when reviewing the Applicants' claims that they will shut down unless they get the full ZEC amount permitted by the statute.

While the Company has stated that it needs the full $10 per megawatt-hour subsidy, there is no way for the Board to verify the Applicants' actual "bottom line."*RC-1,* p. 35. There is no apparent basis for the $10 per megawatt-hour amount other than the fact that it is the maximum amount the Board can award. *PS-3*, Response to PJM-PSEG-CF-0018; *T125:L22 to T126:L4.*

The Board should not award ZECs on this basis. Instead, the Board should critically review the Applicants' financial projections, giving full consideration to the evidence presented by Rate Counsel, the IMM and Levitan. As Rate Counsel witness Andrea Crane testified, the Board should "take the threat out of the equation" and make its decision based on an objective analysis of the data. *T122:L4-21.* If the Board determines to award ZECs, it should be based on the Board's own careful, independent evaluation of financial need. For the reasons explained below, Rate Counsel believes such an evaluation will lead the Board to conclude that ZECs are not needed.

### A. <u>The Applications Overstate the Likely Future Costs of the Units.</u>

On the cost side, Applicants have included significant "costs" for operational and market risks that are speculative and inappropriate to charge to regulated ratepayers who will not share in any higher-than-expected profits. They also propose to recover capital costs on a "cash flow" basis, in violation of both ratemaking principles and sound accounting practice. In addition, they have included spent fuel disposal charges that they do not incur, and have inflated other claimed operational and maintenance and capital costs.

1. **"Costs" of operational and market risks.**

The ZEC Act requires applicants to provide costs, including the "the cost of operational risks and market risks that would be avoided by ceasing operations …." N.J.S.A. 48:3-87.5(a). "Operational risks" are defined in the statute as including "the risk that operating costs will be higher than anticipated because of new regulatory mandates or equipment failures and the risk that per-megawatt-hour costs will be higher than anticipated because of a lower than expected capacity factor …." Id. Market risks include "the risk of a forced outage and the associated costs arising from contractual obligations, and the risk that output from the nuclear power plant may not be able to be sold at projected levels." Id.

As detailed in the prefiled testimony of Rate Counsel witness Andrea Crane, the Applicants' claimed shortfalls include significant "costs" related to operational and market risk. *RC-1,* p. 14-15. With regard to operational risk, PSEG has applied a 10% "adder" to its projected costs, **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *PS-1,* p. 12; *RC-1*, p. 13-14. For market risk, PSEG has **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *RC-1*, p. 14.

The amounts being claimed as "cost of risk" are substantial. The Applicants have included a total of approximately **[BEGIN PSEG CONFIDENTIAL]** **[END**

**PSEG CONFIDENTIAL]** in operational and market risk for the three units for the three years of the second eligibility period. *RC-1*, p. 14-15. This amount **[BEGIN PSEG CONFIDENTIAL]**

[**END PSEG CONFIDENTIAL]** Id. None of the claimed operational and markets risks represent costs that are actually incurred by the Applicants. Instead, they are cost "cushions" to protect the nuclear operators in the even costs are higher or revenues are lower than forecast. *RC-1,* p. 16.

Further, the Applicants' estimates assume that operational risks and market risks will only add costs or decrease revenues. The Applicants' projections presumably reflect their best estimate of the units' financial performance. Therefore, while costs could be higher or revenues lower than forecast, it is also possible that costs could be lower and revenues higher. *RC-1,* p. 17-18. In other words, ratepayers are being asked to provide a virtual guarantee against "downside" risk, with no mechanism for ratepayers to share in the benefits if the units prove more profitable than projected. Id. PSEG witness Daniel Cregg acknowledged that, with only limited exceptions such as if the plants receive payments for fuel diversity or environmental attributes, the ZEC Act does not provide a mechanism for ratepayers to share in higher-than-expected profits. *T18:L4 to T19:L19*. The result is a one-sided and unfair allocation of risks. Ratepayers would guarantee against the risks of ownership, but would be entitled to none of the rewards.

Rate Counsel notes that both the IMM and the Board's own consultant, Levitan, are in agreement with Rate Counsel that ratepayers should not be required to subsidize the Applicants' claimed costs of risk. The IMM's Report explains that the Applicants have "incorrectly define[d] risk," which should reflect the probability of both positive and negative outcomes. *IMM-1,* p. 19.

For this reason, the IMM is in agreement with Rate Counsel witness Ms. Crane that this results in an unfair allocation of risks and rewards. As the IMM explained, the Applicants are seeking a "nonrefundable subsidy based solely on the worst possible outcome," while proposing to "keep the excess if costs are not as high or revenues are not as low." *IMM-1,* p. 19-20. The IMM has performed an analysis of both operational and market risks. With regard to operational risks, the IMM is in agreement with Ms. Crane that the proposed operation risk adder is not a cost at all, but rather a request for a subsidy to "cover an asserted and unquantified possibility that costs will be greater than PSEG's estimates while not providing customers any benefit if costs are lower …." *IMM-1,* p. 24. With regard to market risks, based on consideration of the full range of positive and negative outcomes, the IMM has "conservatively evaluate[d] the costs of risk for revenues as zero." *IMM-1,* p. 26.

The Board's consultant, Levitan, concurs with Ms. Crane that operational and market risks are not "costs,". With regard to operational risk, Levitan "view[ed] the cost of operational risk as a prudent generation planning and asset management parameter but not as a cost actually incurred." *S-1,* p. 21; *S-2,* p. 21; *S-3,* p. 22-23. Similarly, market risk, "is not a true cost incurred by PSEG and is not a line item in its published financial statements." *S-1,* p. 23; *S-2,* p. 23; *S-3,* p. 24. As Seth Parker Vice President and Principal of Levitan, testified at the evidentiary hearing, "the risk is avoided [if the plant ceases operation], but if a cost is not incurred in the first place, then I don't know what the meaning of saying it would be avoided if the plant shuts down." *T204:L12-15.*

There is evidence in the record that the Applicants' claimed market risks are minimal. With regard to energy revenues, PSEG stated in a January 2021 presentation to investors that its nuclear power was 100% hedged for 2021 and 60-65% hedged for 2022. PSEG January 2021

Investor Update, Panel 27.[13] Thus, it appears that PSEG follows a hedging strategy designed to minimize risks related to energy revenues, casting doubt on its claim of such significant cost of energy market risk .

The Applicants' risks relating to capacity revenues also appear to be minimal. The Applicants claim that capacity revenues are at risk due to the PJM Minimum Offer Price Rule ("MOPR"). *PS-1,* p. 19; *T10:L20 to T11:L3.* While PSEG states that there are other elements of capacity market risk, it states that these risks have become material because, to date, PJM has not conducted the BRAs to acquire capacity resources for the energy years that constitute the second ZEC eligibility period. *PS-1,* p. 19. This statement indicates that the risk of not clearing the capacity auctions is the most significant component of capacity market risk.

The MOPR was intended to prevent capacity resources that receive state subsidies from using those subsidies to submit lower bids and suppress prices for resources that do not receive subsidies. *T15:L25 to T16:L9.* For resources subject to the MOPR, the MOPR sets floor prices. The resource is not allowed to offer into the capacity auction at any price below the floor price. *PS-1,* p. 19; *RC-3,* p. 23; *T16:L15-20.* The floor price will prevent the unit from clearing the auction if the floor price is higher than the market clearing prices. On the other hand, if the floor price is below the market clearing price, a unit bid at the floor price will clear the auction. *RC-3,* p. 24-25. *T16:L21-25.*

As an initial matter, it is important to note that the MOPR is an issue only if the units receive ZECs. If the units do not receive subsidies in the form of ZECs, the MOPR will not apply. *RC-3,* p. 23. However, even assuming the units receive ZECs, it appears that the risk of not clearing is minimal. As Mr. Cregg noted at the hearing, the capacity that is to be committed

[13] The Investor Update is available at: https://s24.q4cdn.com/601515617/files/doc_presentations/2021/01/PSEG-January-2021-Investor-Update-FINAL-(1).pdf .

to cover the time frame corresponding to the second ZEC eligibility period is expected to be the subject of three BRA auctions. The first, expected to occur in May 2021, will cover the first year of the second ZEC eligibility period, the 2022-2023 period. The 2023-2024 and 2024-2025 periods will be covered by two auctions to be held at roughly six month intervals thereafter. *T60:L3-11.*[14]

For the first auction, PSEG has performed an analysis to estimate both the floor prices that will apply to the Salem 1, Salem 2 and Hope Creek nuclear units, and the market clearing price. Based on that analysis, PSEG expects the market clearing price to be above the floor prices for all three units, meaning they will clear the next BRA auction. *RC-3,* p. 24-25; *T17:L1-13.* For this reason, PSEG's asserted cost of market risk does not include risk related to the next BRA auction. *T35:L24 to T36:L19.* While PSEG asserts that there is a greater capacity market risk for the following two BRAs, it appears that this risk also is minimal. PSEG has estimated the floor prices for the Hope Creek, Salem 1 and Salem 2 units at $68.36, $74.32 and $74.29 respectively. *RC-3,* p. 24; *Application Response [Unit]-SSA-004.* **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *RC-3,* p. 24. Confidential Attachment A to Mr. Cregg's testimony states that **[BEGIN PSEG CONFIDENTIAL]**

[14] See also PJM Presentation on 2022-2023 BRA Schedule, side 6, available at: https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20201202/20201202-item-05a-2022-2023-base-residual-auction-schedule.ashx. The presentation indicates that the auction for the 2023-2024 period will be held in December 2021 and the auction for the 2024-2025 period will be held in June 2022.

**[END PSEG CONFIDENTIAL]** *PS-1,* Confidential Attachment A, p. 3 of 3. Thus, it also appears that the cost of capacity market risk is minimal and does not support the cost of risk included by the Applicants in their filing.

During the evidentiary hearing PSEG witness Daniel Cregg, and PSEG's counsel through cross-examination of Rate Counsel witness Andrea Crane, compared the returns received by the nuclear units with the rates of return allowed to public utilities. *T22:L25 to T23:L7; T46:L15-20; T75:L2-4; T104:L5 to T105:L9; T106:L9-11.* If PSEG is attempting to suggest that it would be unfair for PSEG and Exelon to operate the units without an allowance for "costs of risk" to provide them with a return on equity, the Board should reject this suggestion. The nuclear units' owners have reaped substantial rewards since New Jersey's electric industry restructuring approximately 20 years ago. In the years following the restructuring, ratepayers paid hundreds of millions of dollars in stranded costs to PSE&G based on the perceived risks that market prices would not be high enough to justify an investment at levels reflected on PSE&G's books at the time that its interests in the units were transferred to PSEG. *RC-1,* p. 17-18. However, for much of the time since deregulation the nuclear units have done very well, with no return of stranded costs to ratepayers when the plants were profitable. *RC-1,* p. 17-18.

It is also important to note that plant owners made strategic decisions to extend their operating licenses for all three units before the enactment of the ZEC Act. Under the original operating licenses, Salem 1 would have been shut down by now, and Salem 2 and Hope Creek would be retired in 2021 and 2026, respectively. In 2009, well after the units were deregulated,

PSEG requested authorization to extend all three licenses. Presumably, PSEG made a calculated business decision that the units were profitable enough to extend their operation. *RC-1,* p. 18-19.

Although market conditions have changed, the Applicants have continued to enjoy other benefits of ownership, including the tax benefits that are discussed in Point II.C.4 below. It is unfair to require ratepayers to provide hundreds of millions of dollars in subsidies to compensate the unit owners for the claimed risks of ownership, without consideration of the substantial benefits they have received in the past. *RC-1,* p. 19. The nuclear unit owners have enjoyed the benefits of ownership over the two decades since New Jersey's electric industry restructuring, and will continue to enjoy the potential profits these units can produce. There is no unfairness in requiring their shareholders to bear the risks as well.

**2. Inclusion of capital expenditures on a "cash flow" basis.**

Another significant component of the Applicants' claimed shortfall is for the cost of capital expenditures. PSEG and Exelon have included capital expenditure as part of their projected cost on a cash-flow basis. As Rate Counsel witness Ms. Crane explained, this approach provides for immediate recovery of capital investment—each year PSEG and Exelon would be fully compensated for their entire capital investments. This approach is "contrary to both common practice and basic accounting principles." *RC-1*, p. 19-20.

The capital expenditures included as costs in the Applicants' financial projections total approximately **[BEGIN PSEG CONFIDENTIAL]** [redacted] **[END PSEG CONFIDENTIAL]** for the three nuclear units over the three-year second eligibility period. This amount **[BEGIN PSEG CONFIDENTIAL]** [redacted] . **[END PSEG CONFIDENTIAL]** *RC-1,* p. 20-21.

As Ms. Crane explained in her prefiled testimony, there are several concerns with this approach. First, recovery of 100% of capital costs in the year they are incurred "violates a basic accounting principle that costs that provide a benefit over multiple years should be recovered over a multi-year period." *RC-1,* p. 21. Deregulated businesses have no expectation that capital expenditures will be recovered on a "cash flow" basis, and this is especially true of major investments that are expected to remain in service for many years. The accounting community has developed rules that reflect this fact. *RC-1,* p. 21-22. This much has been acknowledged by Applicant PSEG. One of P3's written cross-examination questions asked PSEG to explain how it recovered the $266 million costs of a replacement steam generators at the Salem II unit, and PSEG responded that "[t]he nuclear plants do not receive recovery for capital expenses; rather, the costs are paid and the assets are depreciated over their useful lives." *PS-5*, response to PJM-PSEG-CF-0006.

Second, allowing immediate recovery of capital expenditures eliminates all risk that the investment will not be recovered. This presents ratepayers with the worst of both worlds. They are being asked to provide full recovery of capital investment over one year, while being denied the benefits if the investments are profitable. *RC-1,* p. 22. Third, "cash flow" recovery of capital investments creates intergenerational inequities, because it would require current ratepayers to pay for investments that will provide benefits for many years. In fact, it is possible that ratepayers could fund capital investments over the next three years through ZEC payments, and the Applicants could sell the units in Year Four for a profit that would be retained by shareholders. Id.

In addition, while the schedule in this matter did not allow for a complete review of the Applicant's projected capital expenditures, some of the projects included in the subsidy

calculation are ill-defined, and some may not be needed at all. As Ms. Crane noted, **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *RC-1,* p. 22-23.

Finally, the three-year review period provided in the ZEC Act is inconsistent with capital budgets that are intended to provide benefits for many years, over the remaining lives of the units. Even if the Board decides to award ZECs, it is unlikely that ZECs will continue for the next 15 to 20 years. Therefore, the Board should consider whether it is reasonable to include "business as usual" capital expenditures in its subsidy calculations, or whether ratepayer-funded subsidies should be limited to investments that are necessary to keep the units in operation through the end of the second eligibility period. *RC-1,* p. 23. PSEG has acknowledged publicly that it does not expect to rely on ZEC subsidies for the long term. In a September 30, 2020 investors' call, Public Service Group's Chairman and CEO, Ralph Izzo, stated that "…we do think that the direction of Public Policy, both in New Jersey and in the nation is the increased recognition of the importance of carbon-free energy to mitigate climate change, and that value will eventually be more fully recognized." *RC-1,* p. 35. The prefiled testimony of PSEG witness Daniel Cregg confirmed that PSEG views ZECs as temporary, and that "a longer-term solution that values the clean energy attributes of the plants is necessary." *PS-1*, p. 26. If it is the Applicants' expectation that the plants' operations will be funded through a "longer-term solution," then they should look to that solution to recover investments beyond those needed to operate for the next three years.

### 3. <u>Inclusion of spent fuel costs that are not incurred.</u>

The Applicants' cost projections include millions of dollars in spent nuclear fuel disposal costs that are not actually being incurred. As Ms. Crane explained, the United States Department of Energy ("DOE") had previously collected a charge intended to pay for the development of a spent fuel disposal facility. However, the nuclear operators filed suit against the DOE because it had not yet developed a plan to address the disposal of spent nuclear fuel. The spent fuel disposal charge has been suspended by court order since May 2014. PSEG's projections for these costs range from **[BEGIN PSEG CONFIDENTIAL]** [redacted] **[END PSEG CONFIDENTIAL]** per unit per year over the three-year second eligibility period, are not being incurred and should not be considered in evaluating the need for subsidies. *RC-1*, p. 24; *Application Response [Unit]-ZECJ-FIN-0025.* Both the IMM and Levitan are in agreement with Rate Counsel that ratepayers should not be required to subsidize these nonexistent charges. *IMM-1,* p. 28-29; *S-1*, p. 17-19; *S-2,* p. 17-19; *S-3,* p. 18-19.

PSEG acknowledges that the suspended spent fuel disposal fee is not recorded as a liability on its publicly filed financial statements because "the fee has not met the accounting thresholds as prescribed by Generally Accepted Accounting Principles ("GAAP") to be recorded as a liability" but states that is it "prudent" to assume that the cost will be incurred at some future time, *PS-2,* response to BPU-Cross-0048. This is not a sufficient basis for including the spent fuel disposal charge. This proceeding involves a determination of whether there will be subsidies for a three-year period that ends in 2025. As Levitan noted, it is unlikely that the DOE will reinstate the spent fuel disposal charge until many years in the future. *S-1,* p. 18; *S-2,* p. 18; *S-3,* p. 18. While it is true that <u>someone</u> will have to pay to dispose of spent nuclear fuel, it is not at all clear who that will be. It is a matter of speculation whether those costs will be paid by the

current or future owners of the units, or whether they will be socialized over a broader base. These non-incurred costs should not be included in ratepayer-funded subsidies based on speculation that they could be incurred at some indefinite time far in the future.

**4. <u>Inclusion of support services and overhead costs.</u>**

The Applicants' financial statements include significant claims for support services and overhead costs. The claimed costs of support services and overhead costs account for approximately [**BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *RC-1,* p. 24-25. Support Services and Overhead costs total approximately **[BEGIN PSEG CONFIDENTIAL]** . **[END PSEG CONFIDENTIAL]** PSEG claims that **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *RC-1,* p. 26.

The Applicants have not demonstrated that support services and overhead costs included in their subsidy claim are reasonable. As, Ms. Crane explained these are costs based on allocations of cost that are incurred by PSEG's Service Company. As Ms. Crane explained, most service company costs are, by their nature, fixed. Service companies are created to provide common support services to multiple corporate entities so that they can take advantage of economies of scale and share costs. If the units are shut down most service company costs likely would not be avoided. *RC-1,* p. 26-27.

According to the response to [Unit]-ZECJ-FIN-0007, Support Services and Fully Allocated Overhead costs include "administrative and general expenses, costs associated with

insurance, costs incurred outside of the site that directly support site activities, and corporate overhead costs." While there would be some savings if the units were to shut down, many of these costs would not be avoided. PSEG attributed to the nuclear units significant common costs incurred by the service company, and significant corporate overheads, that would not be avoided if the units were to shut down. *RC-1.* p. 27. For this reasons, the Applicants have failed to meet their burden of showing that their claimed operation and maintenance costs "would be avoided by ceasing operations …." N.J.S.A. 48:3-87.5(a).

## B. The Applications Understate the Revenues from the Units.

### 1. The Applicants' energy revenues are understated.

The Applicants' projected energy revenues are based on an unreasonable assumption of low forward energy prices. The May 29, 2020 energy price forwards used by the Applicants are out of date and understate future energy revenues for the three plants. Moreover, through this proceeding, the Applicants have sought to cherry-pick instances of low energy prices for purposes of assuming future energy revenues and ignore upward changes in those same prices. As provided in Rate Counsel's witness, Max Chang, forward energy prices continue to fluctuate but are currently trending upward. See T166:L10-12; RC-3, Page 14, Lines 7-11. The Board should therefore rely on an average of the historic energy prices rather than picking a price on a specific date for purposes of calculating future energy market revenues.

Rate Counsel's position correlates with the findings of Levitan and the IMM. As stated in its Preliminary Reports, Levitan found that energy market "forwards have increased significantly" since May 29, 2020, meaning that projected revenues should likewise be increased. See Preliminary Reports at 12. The IMM also found that the applicant's projections of forward energy prices were understated. See IMM Analysis of NJ Zero Emissions Certificate

(ZEC) Applications at 5 (Jan. 29, 2021)("IMM Analysis"). Specifically, the IMM's Report noted that recent changes by PJM to the energy market, i.e. PJM's approach to reserve pricing and fast start pricing, will likely increase prices in the future. Id. at 15. The IMM further noted that the applicants failed, among other things, to address the positive effect of these design changes in their applications to the Board. Id. at 22.

In their application, the applicants used projections for energy revenues over the five years that result in a total energy revenue projection of [**BEGIN PSEG CONFIDENTIAL**] [**END PSEG CONFIDENTIAL**] billion, or an annual average of [**BEGIN PSEG CONFIDENTIAL**] [**END PSEG CONFIDENTIAL**] over the five-year period. *RC-3* at 14, Lines 1-7. As provided in Mr. Chang's testimony, the applicants' energy revenue projections are highly dependent on the assumptions regarding future energy prices. Id. at 14, Lines 13-16. Therefore changing the assumptions of energy price forwards for the PECO Zone can have a significant impact on the revenue projections of the nuclear plants. As Mr. Chang shows in Table 3 of his Direct Testimony, using energy price forwards from September 30th as opposed to May 29th results in millions of dollars of additional projected revenues for the applicants:

**[BEGIN PSEG CONFIDENTIAL]**

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**[END PSEG CONFIDENTIAL]**

[*RC-3* at 16, Lines 2-6.]

As seen in Mr. Chang's analysis, the September 30th energy price forwards result in an aggregate increase in energy revenues of **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** for the period 2021 through 2025 compared to energy revenues using the May 29th energy price forwards. Beginning at the second ZEC eligibility period (June 1, 2022), the aggregate increase in energy revenues is **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]**

Accordingly, based on the analysis by Mr. Chang, Levitan, and the IMM, the Board should reject the applicants projected energy revenues because they are not based on reasonable assumptions of future energy revenues during the eligibility period. PJM's changes to the energy market, as well as an average upward trend in prices when compared with 2016 to 2019, indicate that the projected future revenues for nuclear units will be higher during the second eligibility period than those proffered by the applicants.

**2. The Applicants' capacity revenues are understated.**

The Applicants similarly understate the capacity revenues which are attributable to the three nuclear plants. In their applications, the Companies assumed a forward capacity price of **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** for the 2022/23 and 2023/2024 energy years. However, this price does not match a reasonable assumption of forward capacity prices, or even the Board's own assumptions. For purposes of a capacity proxy price in the Board's Basic Generation Service proceeding, the Board found it reasonable to utilize the price of $152.06/MW-day for ACE and JCP&L, based on the results of the last three BRA auctions. I/M/O the Provision of Basic Generation Service for the Period Beginning June 1, 2021, Docket No. ER20030190 (Nov. 18, 2020). These prices are significantly higher than the forward capacity price Applicants are asking the Board to use in this matter. Moreover, in the Board's Investigation of Resource Adequacy Alternatives, the applicants are advocating that New Jersey form a Fixed Resource Requirement Alternative in response the MOPR. To justify customer savings through the FRR construct, PSEG assumed in its comments in that case a capacity price of $166/MW-day, based on the results of the 2021/22 BRA. See Joint Reply Comments of PSEG and Exelon Generation Company LLC at Page 11, Table 1 (June 24, 2020)(available at

https://www.nj.gov/bpu/pdf/ofrp/Supplemental%20Comments/Public%20Service%20Electric%20and%20Gas%20Company-Exelon%20Generation%20%5B6-24-2020%5D.pdf).

Board Staff's witness, Levitan, has likewise found that the Board should remain consistent in its projections for future capacity prices. In its response to written cross examination, Levitan recommended that the Board use the agency's Offshore Wind Solicitation #2 Guidance Document for purposes of consistency. LAI Response to ZEC2-LEV-XQ-0001. The prices contained in that document also significantly exceed the forward capacity price proposed by the Applicants. The prices used in that document are $170.64/MW-day for PSE&G and $157.79/MW-day for the State's three other EDCs.

Similar to Rate Counsel and Staff, the IMM's analysis used the three-year historical average of EMAAC BRA prices applied to the full unforced capacity (UCAP) of Hope Creek, Salem 1 and Salem 2. In its analysis, the IMM explained the "BRA price is the best metric and a conservative metric for the market value of the entire capacity from these three units." IMM Analysis at 16-17. Based on this price, the Applicants projected capacity revenue would be increased by **[BEGIN PSEG CONFIDENTIAL]** ███ ████ **[END PSEG CONFIDENTIAL]** more for Hope Creek and **[BEGIN PSEG CONFIDENTIAL]** ███ million **[END PSEG CONFIDENTIAL]** more for Salem 1 and Salem 2 than the Applicants' projections for the three energy years 2022/2023 through 2024/2025. Id. at 17.

As a result, it is clear that the Applicants have significantly underestimated the capacity revenues the three nuclear plants are likely to receive. Not only are the Applicants' projected forward capacity prices unreasonably low in light of historic prices, they are inconsistent with the Board's own recent projections for capacity prices in the BGS and Offshore Wind

proceedings. The Board should therefore recognize that the capacity revenue for the three units will likely be much higher during the second eligibility period than projected by the Applicants.

**3. The Applicants fail to include hedging revenues.**

In addition to understating energy and capacity revenues, the Company also excluded hedging revenues. In its response to [Unit]-ZECJ-FIN-0012 PSEG stated that it **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** *RC-1*, p. 28. The exclusion of hedging revenues overstates the required subsidies for two reasons. First, even if hedge contracts are not tied to specific generating units, the nuclear units provide an energy source that is integral to the company's hedging positions. *Id.* PSEG appears to have recognized this fact in its January 2021 representation to investors that it hedges energy prices for its nuclear units. PSEG January 2021 Investor Update, Panel 27.[15] Second, at the same time PSEG has excluded hedging revenues, it has implicitly included the cost of hedging activities in its market risk models. It is unfair to exclude hedging revenues while seeking to charge ratepayers for the associated costs. *RC-1*, p. 28.

**4. The Applicants fail to consider additional tax benefits.**

The Applicants also have generally ignored tax benefits in their financial analyses. One example of the significant tax benefits resulting from ownership of an unregulated entity is the impact of the Tax Cuts and Jobs Act of 2017 ("TCJA"), which took effect on January 1, 2018. P.L. 115-97, 131 Stat. 2054 (Dec. 22, 2017). The most significant feature of this legislation was

[15] The Investor Update is available at: https://s24.q4cdn.com/601515617/files/doc_presentations/2021/01/PSEG-January-2021-Investor-Update-FINAL-(1).pdf .

its reduction of the corporate federal income tax rate from 35% to 21%. In addition to reducing the Applicants' corporate income taxes going forward, the TCJA resulted in millions of dollars of excess deferred taxes relating to the nuclear units. *RC-1,* p. 29.

Deferred taxes occur when the tax treatment given to certain costs differs from the treatment pursuant to GAAP, such as when the Internal Revenue Code allows accelerated depreciation for tax purposes. *RC-1,* p. 29. The difference between the tax paid and the tax based on GAAP is recorded as deferred taxes. In most cases, these differences relate to timing differences between tax and book treatment, and therefore the accumulated deferred income tax balances reverse over time. *Id.* Accumulated deferred income taxes are calculated based on current tax rates. Thus, when the federal income tax rate was lowered, the companies found themselves with deferred income taxes that will be paid at the 21% rate, rather than the 35% rate at which these expected future taxes were originally recorded. Excess deferred taxes income are the difference between the originally recorded amount, and the amount that is re-calculated based on the lower tax rate. *RC-1,* p. 29-30.

As the Board is aware, the State's regulated utilities are returning their excess deferred income taxes to ratepayers. See, e.g., IM/O the New Jersey Board of Public Utilities' Consideration of the Tax Cuts and Jobs Act of 2017 (Public Service Electric and Gas Company), Order at 2, BPU Dkt. Nos. AX18010001 & ER18030231 (Mar. 26, 2018); I/M/O the Petition of Public Service Electric and Gas Company for Approval of an Increase in Electric and Gas Rates, BPU Dkt. Nos. ER18010029 et al., Decision and Order Adopting Initial Decision and Stipulation at 9 (Oct. 29, 2018). However, unregulated entities can immediately reflect the impact in their income statements. Therefore, following the enactment of the TCJA both PSEG and Exelon

recorded credits to income, thus providing shareholders with benefits that would have been refunded to ratepayers if these companies had been regulated utilities. *RC-1,* p. 30.

More generally, there are other tax benefits associated with the nuclear units. The three units are held by limited liability companies ("LLCs") and profits and losses are flowed through to the LLC members. Since both PSEG and Exelon file consolidated taxes, tax losses incurred by the LLCs can be used to offset taxable income earned by affiliated companies in the consolidated group. Tax losses can be especially beneficial when the consolidated group includes a member, such as public utility, that has significant taxable income. The Applicants' financial analyses did not include consideration of these tax benefits. *RC-1,* p. 30.

## C. Conclusion

The Applicants have not met their burden of demonstrating a financial need for ZEC subsidies. On the cost side, the Applicants' projections include speculative operational and market risks. The costs of market risks that may exist are likely to be minimal, given that the plants hedge their energy market risks and are likely to clear the capacity market despite application of the Minimum Offer Price Rule. Their operational costs and risks are also inflated in that they include "cash flow" recovery of capital expenditures, phantom spent fuel disposal cost, and service company and overhead costs that have not been shown to be avoidable if the plants shut down. *RC-1,* p. 33. When these items are eliminated from the projections, they show no need for subsidies. As detailed by Rate Counsel witness Ms. Crane, **[BEGIN PSEG CONFIDENTIAL]**

**[END PSEG CONFIDENTIAL]** that are speculative or otherwise unreasonable to include in ratepayer-funded subsidies. *RC-1,* p. 33-34.

The Applicants also underestimated their revenues. Tax benefits and hedging revenues were not considered. *RC-1,* p. 34. In addition, the Applicants have understated their projected energy and capacity revenues. By utilizing May 29th energy price forwards instead of September 30th energy price forwards, Applicants' aggregate energy revenues are understated by **[BEGIN PSEG CONFIDENTIAL]** ████████ **[END PSEG CONFIDENTIAL]** for the period 2021 through 2025. The Applicants also understated capacity revenues, assuming a forward capacity price of **[BEGIN PSEG CONFIDENTIAL]** ████████ **[END PSEG CONFIDENTIAL]** for the 2022/23 and 2023/2024 energy years, instead of the $152.06/MW-day used by the Board as the BGC proxy price for the ACE and JCP&L zones, based on the results of the last three BRA auctions, the $166/MW-day advocated by PSEG in the BPU's Resource Adequacy FRR Proceeding, or the prices used by the Board in the recent Offshore Wind Solicitation ($170.64/MW-day for PSE&G and $157.79/MW-day for the State's three other EDCs).

As discussed in Point I above, Applicants must meet all five of the statutory criteria stated in N.J.S.A. 48:3-87.5(e). Since the applicants have not met their burden of demonstrating financial need as required under N.J.S.A. 48:3-87.5(e)(3), they are not entitled to an award of ZECs.

## III. ZECS ARE NOT REQUIRED TO MAINTAIN RELIABILITY NOR IS RELIABILITY A CRITERION FOR REWARDING ZECS UNDER THE STATUTE.

As noted above, the ZEC Act provides specific criteria for the Board to determine eligibility for a nuclear power plant to receive ZECs. Those criteria include factors such as the plant's projected costs and revenues, its contribution to air quality in the state, and the status of its license from the Nuclear Regulatory Commission. Notably absent from the enumerated criteria is the plant's contribution to the reliability of electricity in the state. This is likely

because our system does not rely on the benevolence or cooperation of any single unregulated generator for the reliability of our electric system. As the evidence in the record demonstrates, there are other systems in place to ensure that New Jersey has adequate generation available to meet its needs. Indeed, the record demonstrates that even if a ZEC is awarded in this case, that alone will not assure reliability of the State's electric system, as the applicant has made it abundantly clear that the award of a ZEC will not guarantee that it will keep the plants open. *PS-5*, Response to PJM-PSEG-CF-0018; *T23:L23 to T24:L8; T27:L1-16.* Thus, maintaining reliability cannot and should not be the basis for granting ZECs in this case.

During his questioning of Rate Counsel witness Andrea Crane at the evidentiary hearing in this case, President Fiordaliso stated that "[o]ur responsibility is to provide reliable service to the nine million people who live in the State of New Jersey," that "[i]t is incumbent upon us to ensure the fact that when I walk into a room and I throw the switch on, I have lights, or when I turn the heat up, I have heat, or I have air conditioning, or whatever …," and that there are "9 million people who are depending on us to ensure that when they flip the light switch, the lights go on, and when they turn on their heat, the heat comes on, and then they turn down the heat, that air-conditioning comes on, that's our responsibility." *T119:L22-23; T123:L5-8 T133:L1-6.* He also questioned of Rate Counsel witness Maximilian Chang about what the State should to keep the light on in the event the nuclear plants were to close. *T153:L19 to T154:L3.* Similarly, Commissioner Holder questioned Staff's witness, Seth Parker of Levitan about reliability. *T217:L2-6.*

This concern is a red herring. Our system is not so fragile that it relies on unregulated generation owners to maintain system reliability. First, PJM, as the Independent System Operator, conducts load forecasts and maintains a reserve margin so that there is a cushion of

generation in the event some plants are unable to provide capacity when needed.[16] The reserve margin in PJM for the summer peak during the second ZEC period ranges between 31-35%.[17] Second, as testified to at the evidentiary hearing by both the Independent Market Monitor for PJM and the Board's own consultant, if a plant seeks to close down, PJM will conduct a review to determine whether continued operation of that plant is needed for reliability purposes. *T80:L7-23; T82:L5-17; T217:L7-21.* If it is, PJM will require that plant to continue operation and will compensate its operator under a "Reliability Must Run" contract. *Id.* In this way, PJM is able to ensure that the decision of a private unregulated corporation to close its facility cannot unilaterally undermine reliability in any state within PJM's jurisdiction. As the Commissioners must surely be aware, we do not leave questions of reliability to a "roll of the dice," and we do not allow system reliability to be held hostage by the private financial concerns or desires of unregulated corporate entities. Thus, the fears expressed by President Fiordaliso and Commissioner Holden are addressed in other ways and need not form the basis of any decision on whether to award a ZEC.

Moreover, pursuant to the plain language of the statute, reliability is not an eligibility criterion on which to base the award of ZEC subsidies. Perhaps the Legislature knew of the PJM safeguards protecting reliability from such unilateral actions by unregulated generators when it established the eligibility criteria. Whether that was the case or not, the Legislature chose not to make reliability a criterion for awarding ZECS. The Board is bound by the criteria set forth in the statute and is not free to add additional criteria. See, In re Centex Homes, LLC, 411 N.J. Super. 244, 262(App. Div. 2009) (citing the court's "prior invalidation of BPU regulations for

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[16] PJM Resource Adequacy Analysis, Manual 20, available at: https://www.pjm.com/~/media/documents/manuals/m20.ashx
[17] PJM 2.19.2020 Forecasted Reserve Margin Graph, available at: https://www.pjm.com/-/media/planning/res-adeq/20200219-forecasted-reserve-margin-graph.ashx .

adding criteria not specifically enumerated in the statute" as part of the basis for invalidating service extension rules that incorporated "smart growth" policy goals). Nor should it, as the applicants here have made it clear that even if a ZEC is granted the continued operation of these plants for the full three year eligibility period is not guaranteed. Over and over, PSEG expressed its view that that the maximum amount that could be awarded under the statute was less that it believed was needed for the plants to earn a sufficient profit, and no assurances were given therefore that even if the plants were to be awarded ZECs for the second eligibility period that the plants would continue to run for that entire period. *PS-5*, Response to PJM-PSEG-CF-0018; *T23:L23 to T24:L8.* When PSEG witness Daniel Cregg was asked directly by Commissioner Chivukula whether "there [is] an assurance" that the company would not close the plants with a $10 ZEC, Mr. Cregg, responded that there was a "self-correcting element" that would incentivize continued operation. *T27:L1-16.* This falls short of an assurance. Thus, even if reliability were a permissible statutory eligibility factor, the applicants have not demonstrated that the award of ZECs in this case will assure continued reliability.

Further, the "self-correcting element" referred to by Mr. Cregg provides a broad range of scenarios under which the applicants could choose to close down the plants without repayment of the ZECs. See N.J.S.A. 48:3-87.5(k)(1). Specifically, the applicants will not have to return any of the hundreds of millions in ZEC compensation back if:

> **(a)** the selected nuclear power suspends or ceases operations, despite the selected nuclear power plant's reasonable efforts to continue operations, due to an event 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. The selected nuclear power plant shall no longer be excused from performance, and a payment from an electric public utility shall be due, after conclusion of the event;
> **(b)** a State law is enacted imposing a significant new tax, special assessment, or fee on the generation of electricity, the ownership or

> leasehold of a generating unit, or the privilege or occupation of the generation, ownership, or leasehold of generation units by a selected nuclear power plant;
> **(c)** a State or federal law is enacted that materially reduces the value of a ZEC, or the board exercises its discretion to reduce the amount of the per kilowatt-hour charge pursuant to paragraph (3) of subsection j. of this section;
> **(d)** the selected nuclear power plant requires capital expenditures in excess of $40,000,000 that were neither known nor reasonably foreseeable at the time it was selected to receive ZECs, and the capital expenditures are expenditures that a prudent owner or operator of a selected nuclear power plant would not undertake; or
> **(e)** The United States Nuclear Regulatory Commission terminates the selected nuclear power plant's license.
>
> [N.J.S.A. 48:3-87.5(k)(1). See also N.J.S.A. 48:3-87.5(k)(2).]

Notably, among the numerous exceptions listed above, are rather common occurrences for most New Jersey residents, such as an increase in property or other taxes. The applicants will likewise be excused from returning any money to ratepayers following any change in state or federal law which reduces the value of the ZEC. As the Board is well aware, several initiatives that would fall into these categories are currently under consideration at the BPU, FERC and PJM and any one of them could result in the PSEG collecting the ZECs, closing the plants and keeping the money with no recourse for ratepayers. Such a result is neither just nor reasonable. Finally, if the Board chooses to reduce the amount of the per kilowatt-hour charge for the coming second eligibility period the Applicants can close the plant without recourse for the ratepayers. N.J.S.A. 48:3-87.5(j)(3). Consequently, there is no assurance provided in the statute that the applicants will stay open or that ratepayers will get refunds of amounts paid if they close. Instead, the statute provides broad and vague loopholes for nonperformance.

PSEG's failure to commit to continued operation of the plants highlights the unfairness and unreasonableness of awarding further ZECs. The fact that ZECs could be awarded and paid

without any guarantee that ratepayers would get their part of the "bargain," i.e., the continued operation of these plants, is yet another example of how one-sided each transaction relating to these plants has been for ratepayers. First, when the plants were deregulated, ratepayers paid PSEG for its "stranded costs" in exchange for being relieved of financial responsibility if the future revenues of the plants did not cover their costs. For many years the revenues far exceeded the costs, providing a windfall for the applicants. As soon as they did not, however, the bargain was undone to the detriment of ratepayers who, having paid the stranded costs and having not shared in the windfall revenues, were required to assume financial responsibility once again for the plants' revenue shortfall in the form of ZEC subsidies. Now, ratepayers are being asked to continue those subsidies with no guarantee that the plants will stay open and no guarantee that the subsidies will be returned if the plants close or revenues improve. It is literally "Heads I win, Tails you lose."

Similarly, PSEG touts other "consumer protections" included in the statutes, but they are also illusory. For example, N.J.S.A. 48:3-87(i)(3) includes a provision that purports to "ensure that a selected nuclear power plant shall not receive double-payment for its fuel diversity, resilience, air quality, or other environmental attributes," by allowing for deductions from the ZEC payments for payments to the applicants for such attributes. However, that provision only applies to direct or indirect payments to the applicants, and not to other measures, such as the Regional Greenhouse Gas Initiative or capacity market changes, that may increase the plants' revenues but do not come in the form of payments.to the applicants. Thus, those "consumer protections" are incomplete at best.

## IV. THE APPLICANTS' CLAIMED ENVIRONMENTAL BENEFITS ARE OVERSTATED.

The ZEC itself is intended to compensate the nuclear plant owners for the "emissions avoidance benefits" of the plant, which is defined as:

> The benefits associated with the preservation of better air quality and other environmental attributes caused by the production of electric energy from a selected nuclear power plant, as well as the reduction in damage that would otherwise be caused by carbon dioxide or other greenhouse gases or other pollutants emitted but for the production of electric energy from a selected nuclear power plant.
>
> N.J.S.A. 48:3-87.4 (2).

Applicants' experts PA Consulting and ERM, which analyzed and produced the emissions modeling and conducted dispersion modeling respectively, both modeled three scenarios: the *status quo*, the impact if only Hope Creek shuts down, and the impact if all three plants shut down. ERM used the results of the PA Consulting modeling and conducted dispersion modeling for ozone, NOx and a spreadsheet analysis for Greenhouse gases ("GHG"). *Application Response ZECJ-ENV-0001,* attachments.

The results of this modeling demonstrate that while GHG emissions would increase under both shutdown scenarios, the amounts would still keep New Jersey below the 2020 targets established in the Global Warming Response Act (GWRA). N.J.S.A. 26:2c-37. Similarly, with respect to ozone, the modeling found that there would be some increase if the plants shut down, but not a significant increase. With respect to NOx, the modeling also found an increase if the plants shut down. *Application Response [Unit]-ZECJ-ENV-0001,* Application Air Emissions Impact.The ERM report noted that the 2019 NJ DEP report indicated that the statewide emissions in 2018 were 97 MMT, which is below the 2020 limit of 125.6 MMT. (ERM GHG report page 6) In this proceeding, ERM found that the retirement of all three units would result in the increase of at most 12.2 MMT per year. (ERM GHG Report page 5). If the 12.2 MMT is added to the statewide emissions of 97 MMT, it results in a total emissions of 109.2 MMT still

below the 2020 GWRA limit. In this proceeding, the Applicants are stating that the retirement of the three units would impede the state's 2050 goals of 25.4 MMT in 2050. However, the state still has options to meet the 2050 GWRA limit with the scheduled retirement of the units and accelerated offshore wind development that was not fully modeled in the most recent Energy Master Plan. *RC-3,* page 27, line 11)

Both PA Consulting and ERM limited their data analysis to a three year near term modelling timeframe of June 1, 2022 to May 2025. The use of this near term modelling only took into account possible replacement resources of existing generation and/or known capacity thereby excluding medium and long term trends and New Jersey initiatives that effect state emissions. Primary among these initiatives are the medium Offshore Wind goal of 1,100 MW and long term goals of up to 3,500 MW by 2030 and Governor Murphy's updated goal of 7,500 MW by 2035. By ignoring both the medium and long-term offshore wind development goals, the Applicants' calculations ignored factors that might offset some loss of carbon –free emissions if one or more of the nuclear units are retired. Yet even at the original lower 3,500 MW target Mr. Chang's testimony notes "the difference in offshore wind in 2035 of 3,500 MW is almost equal to the nameplate capacity of 3,649 MW attributable to the three nuclear plants." *RC-3,* p. 27 lines 15-16. With the inclusion of the incremental 3,500 MW of offshore wind, the 7,500 MW of offshore wind will generate more energy than the three nuclear units even with the discrepancy of differing capacity factors for nuclear energy, 93.4%, and offshore wind, 60-64%, See ZEC2-Chang-XQ-0013(b) and (c). The Governor's goal of 7,500 MW of offshore wind by 2035 with an assumed capacity factor of 60% would generate 39.4 Terrawatt-hours (TWh) per year. The three New Jersey nuclear plants have a combined nameplate capacity of 3,649 MW and using the

U.S. average nuclear fleet capacity factor of 93.4% will generate 29.8 TWh per year. See *RC-4,* Response to ZEC2-Chang-XQ-0013(d).

Mr. Chang stressed "the fact that an EMP modeling scenario that (1) assumes half of the installed offshore wind capacity target for the state in 2035, and (2) retires the nuclear units,[18] still achieves the state's 2050 100% clean energy target goals indicates that the state does have options to meet its clean energy goals without the nuclear units." RC-3 Page 27, lines 16-19. "The potential to build out offshore wind projects to meet and to exceed the state's goals of 7,500 MW for offshore wind will eclipse the energy generation capacity of the three New Jersey nuclear plants." See ZEC2-Chang-XQ-0013(d). Applicant's argument that the higher capacity output of the nuclear units cannot be replaced by the states achievement of its offshore wind goal due to the higher capacity of the nuclear units is therefore unfounded.

For these reasons, Applicants have failed to demonstrate that the environmental attributes of these plants justify awarding ZECs. In addition, they have failed to demonstrate that the "emissions avoidance benefits" of these plants justifies the approximately $300 million per year cost of the ZECs. Additionally not considered or even mentioned is the probable prospect that the three nuclear units will likely benefit from potential Biden Administration's future clean energy policies to meet the United States' renewed commitment to the Paris Climate Accords. *RC-3,* Page 36, Lines 5-7.

[18] 2019 New Jersey Energy Master Plan Pathway to 2050. 2020. Page 275. Available at https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf 29 HC-ZECJ-ENV_0001_PA – PSEG – Nuclear Retirement Report_9-25-2020 30 Ibid. page 13 31 Energy Master Plan. Page 281. 32 https://www.nj.gov/governor/news/news/562019/20191119b.shtml 33 Evolved Energy Research. New Jersey 2019 IEP Technical Appendix. November 29, 2019. Figure 6: Installed capacity in New Jersey by type and year. Available at https://nj.gov/emp/pdf/New_Jersey_2019_IEP_Technical_Appendix.pdf

## V. IF, DESPITE THE EVIDENCE PRESENTED ABOVE, THE BOARD DECIDES TO AWARD A ZEC, IT SHOULD AWARD A REDUCED ZEC CHARGE.

As explained above, the Company has not demonstrated the need for a ZEC subsidy. To the extent the Board decides to grant any subsidy, however, the record before the Board demonstrates that the Company should not receive the full subsidy of $10.00/MWh for the second eligibility period. Rather, as discussed below, the Board, based upon a careful analysis of the evidence in the record, should award a lesser amount that is no higher than the social cost of carbon as demonstrated by Rate Counsel.

### A. If the Board Decides to Award ZECs the Statute Requires that the Rate be Justified Based on its Underlying Components.

The ZEC statute allows the Board to reduce the subsidy in the second eligibility period. The statute provides that

> to ensure that the ZEC program remains affordable to New Jersey retail distribution customers, the board may, in its discretion, reduce the per kilowatt-hour charge imposed by paragraph (1) of this subsection starting in the second three year eligibility period and for each subsequent three year eligibility period thereafter, provided that the board determines that a reduced charge will nonetheless be sufficient to achieve the State's air quality and other environmental objectives by preventing the retirement of the nuclear power plants that meet the eligibility criteria established pursuant to subsections d. and e. of this section.
>
> N.J.S.A. 48:3-87.5(j)(3)(a)

Unlike the prior ZEC proceeding, in this matter, there is no dispute that the Board must review not only the need for the ZEC subsidy, but also the level of subsidy that should be awarded. The Board is obligated to review the application and to ensure the ZEC rate is just and reasonable. There can be no doubt that in these unprecedented times, the Board's obligation to ensure that rates are just and reasonable is paramount. Despite the severe economic downturn of the last year, our State's electric retail distribution customers continue to see increases in their

rates.[19] On top of these increases, PSEG now seeks to continue require $300 million a year from these same ratepayers to enhance the profitability of its nuclear plants. Consistent with the Board's statutory obligation to ensure just and reasonable rates, it must review the evidence submitted to support the ZEC rate to ensure that any amount awarded is just and reasonable. .

In determining the amount of the subsidy, the Board has an obligation to carefully consider all of the evidence before it. The amount of the subsidy must be based on a reasoned analysis that is sufficient to "satisfy the requirements of the adjudicatory process …." Blackwell v. Department of Corrections, 348 N.J. Super. 117, 122-23 (App. Div. 2002). The Board must explain "how it weighed the proofs" on disputed issues of fact. St. Vincent's Hospital v. Finley, 154 N.J.Super. 24, 31 (App. Div. 1977). See also Smith v. E.T.L. Enterprises, 155 N.J. Super. 343, 348 (App. Div. 1978), quoting Benjamin Moore & Co v. Newark, 133 N.J. Super. 427, 428 (App. Div. 1975) (agency must both find facts and "set forth 'an analytical expression of the basis which, applied to the found facts, led to the holdings below'"). In other words, the Board must address and explain its disposition of each of the significant issues that have been raised concerning the reasonableness of the Applicants' financial projections.

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[19] While unemployment soared and arrearages spiked, the Board approved rate increases for Atlantic City Electric (3 PowerAhead roll-ins: Dkt No. ER19111434 (3/27/20); Dkt. No. ER20050337 (9/23/20); Dkt. No. ER20110693 (3/24/21); Two IIP Roll-ins: Dkt. No. ER20050336 (9/23/20); Dkt. No. ER20110694 (3/24/20); a new EE Program, Dkt. Nos. EO20090621 and QO19010040; a new EV program Dkt. No. EO18020190 (2/27/21); AMI implementation, Dkt. No. EO20080541; and a pending base rate case seeking a 6.9% increase in rates, Dkt. No. ER20120746); JCP&L (IIP roll-in, Dkt. No. ER19091238 (2/19/20); a base rate increase of 4%, Dkt. No. ER20020146 (10/28/20); a new EE Program, Dkt. Nos. QO19010040 & EO20090620; a new EV program, Dkt. No. EO21030630; and an AMI proposal, Dkt. No. EO20080545); PSE&G(EE Program, Dkt. Nos. GO18101112 & EO18101113 (9/23/20); AMI implementation plan, Dkt. No. EO18101115 (1/7/21); EV Program, Dkt No. EO18101111 (1/27/21); Energy Strong Roll-in, Dkt. No. ER 20120771; GSMP roll-ins, Dkt. No. GR19120002 (7/15/20); Dkt. No. GR20060464 (11/18/20)); and RECO (pending EE, Dkt. Nos. QO19010040 AND EO20090623 and EV Programs, Dkt. No. EO20110730). This does not include the cost of future renewable energy programs including solar and offshore wind.

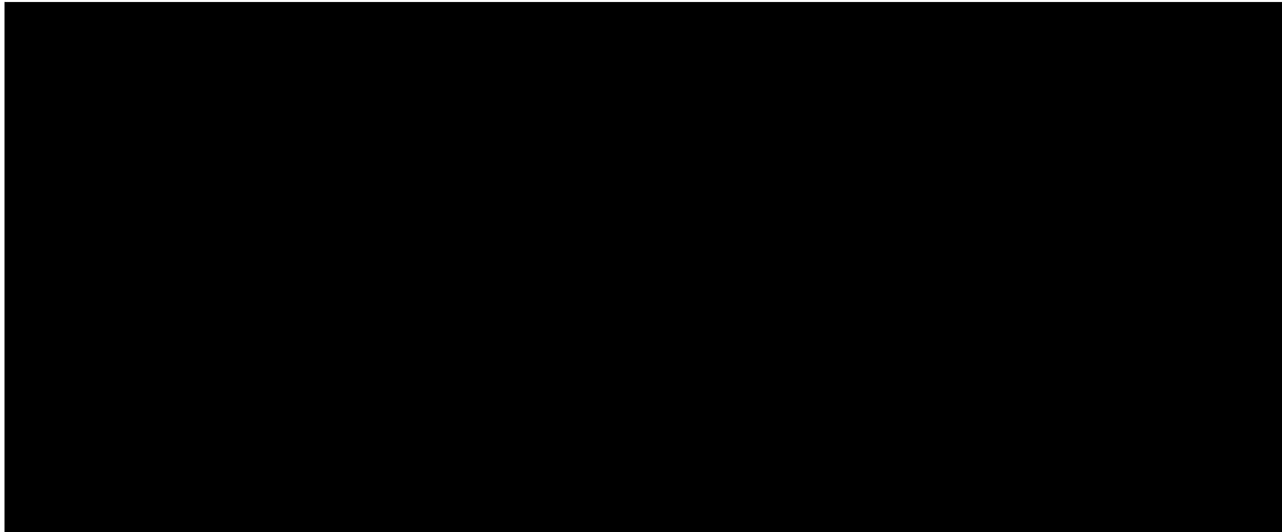
**B. The ZEC Subsidy Should not Exceed the Social Cost of Carbon for the Avoided New Jersey Emissions.**

The ZEC Act presumes that the subsidy will be lower than the social cost of carbon for avoided New Jersey emissions. In its determinations, the Legislature explained, "The zero emission certificate program set forth in this act is structured such that its costs are guaranteed to be significantly less than the social cost of carbon emissions avoided by the continued operation of selected nuclear power plants, ensuring that the program does not place an undue financial burden on retail distribution customers." N.J.S.A. 48:3-87.3(b)(8) (emphasis supplied). Therefore, the social cost of carbon value of avoided carbon emissions is the upper limit to any ZEC rate.

Rate Counsel witness Maximilian Chang provided an appropriate calculation for the social cost of carbon value of the avoided emissions. First, he utilized the incremental in-state carbon emissions taken from the full retirement and the Hope Creek retirement scenarios from the PA consulting report for the three-year modeling period starting on June 1, 2022 through May 31, 2025. *Application Response [Unit] ZECJ-ENV-0001.* For the social cost of carbon, Mr. Chang used a cost of $46.60 per short ton in 2020 dollars, which is a conversion of the 2016 U.S. Interagency Working Group on the Social Cost of Carbon of $42/metric ton in 2007$ as referenced in the ZEC Act. A more recent social cost of carbon was reported in, the 2020 "Social Cost of Carbon" report by the United States Government Accountability Office has $50 per metric ton in 2018 dollars and a 3 percent discount rate. This value resulted in a social cost of carbon value of $46.51 per short ton (2020$), which is very similar to the $46.60/per short ton from the ZEC legislation. *RC-3,* page 32. For the projected generation of the three units over the 2022 through 2025 period, Mr. Chang used information provided by the Applicants. *Id.* The

following chart calculates the avoided emissions per megawatt-hour of generation over the second ZEC eligibility period and associated avoided emissions benefit:

**[BEGIN PSEG CONFIDENTIAL]**



**[END PSEG CONFIDENTIAL]**

If the Board determines that a ZEC subsidy is warranted, the Board should use Mr. Chang's social cost of carbon value of avoided emissions as the upper limit for ZEC payments for continued operation of the three nuclear units from 2022 to 2025. Mr. Chang provided evidence that the in-state value of avoided greenhouse gas emissions from not retiring is **[BEGIN PSEG CONFIDENTIAL]** , **[END PSEG CONFIDENTIAL]** based on the PA Consulting report for avoided emissions, the 2016 social cost of carbon value and projected generation from the three plants. This results in a ZEC value of **[BEGIN PSEG CONFIDENTIAL]** **[END PSEG CONFIDENTIAL]** for the second eligibility period. Rate Counsel notes that the Levitan Preliminary Report calculated subsidies less than Rate Counsel's suggested value for Salem 1 and Salem 2.

The Applicants take issue with Mr. Chang's calculations and his focus on air pollution in New Jersey. While it is true that the Legislature recognized that out-of-state air emissions

impact New Jersey's ability to meet its climate goals, see, N.J.S.A. 48:3-87.3a(1), PSEG attempts to artificially inflate the environmental benefits of its plants in order to increase the "air emissions value" of the ZECs. While Mr. Chang calculated the emissions avoidance benefits in New Jersey as set forth above, PSEG's calculations of emissions avoidance benefits included the benefits from the Eastern Interconnection, which includes the entire eastern two-thirds of the continental United States. *Application Response [Unit]ZECJ-ENV-0001,* PA Consulting Report, p. 9 (Sept. 2020). This has the effect of wildly inflating the 'emissions avoidance benefits" claimed by these plants.

The Legislature certainly recognizedthat in order to meet air quality standards in New Jersey, it needed to address the electric power provided to the customers in New Jersey, whether that power was generated in New Jersey or not. This is best summed up in the Legislative finding: "Reducing emissions of carbon dioxide, other greenhouse gases, and other pollutants, and preserving and developing zero-emission electricity generation sources within and outside the State that currently provide electricity to customers in New Jersey, are critical to improving air quality for New Jersey residents." N.J.S.A. 48:3-87.3a(4) (emphasis added). The Legislature saw that power plants within and outside the State provide electricity to customers in New Jersey. N.J.S.A. 48:3-87.3a(8). It is this basic understanding that led the Legislature to seek investment in infrastructure within and outside the State that does not produce greenhouse gases. N.J.S.A. 48:3-87.3a(12).

The Legislature was clear, however, that its primary concern was in-state air quality. The Legislative findings point to the fact that the existing renewable energy portfolio and the growth of renewable energy generation has served "to reduce air pollution in New Jersey." N.J.S.A. 48:3-87a(6). In an effort to justify nuclear power as "clean energy," the Legislature further

found that "The retirement of nuclear power generation will inevitably result in an immediate increase in air **emissions within New Jersey** due to increased reliance on natural gas-fired generation and coal-fired generation." N.J.S.A._48:3-87a(9) (emphasis added). The Legislature further discussed its concern that "poor air quality has a disproportionate impact on the most vulnerable **citizens of New Jersey** . . ." N.J.S.A._48:3-87a(10) (emphasis added). The Legislature further emphasized that "as a coastal state, New Jersey is particularly exposed to many of the effects of global climate change . . ." N.J.S.A._48:3-87a(11). In the Legislative determinations, the Legislature noted that "increased reliance on natural gas-fired and coal-fired generation will substantially impede the **State's** ability to meet those federal and **State** air quality standards and emissions level requirements." N.J.S.A._48:3-87b(2) (emphasis added). Thus, the Legislature was clearly primarily concerned about air quality in New Jersey.

PSEG's attempts to discredit Mr. Chang's calculations by asserting that he inappropriately relied upon in-state values for carbon emissions should therefore be rejected. PSEG's excessive calculations of emissions avoidance benefits using the expansive Eastern Interconnection[20] covers too large an area and clearly inflates the quantity and hence value of avoidedcarbon emissions.

Mr. Chang's in-state value for carbon emissions is precisely what the Legislature sought. The Legislature understood that in order to protect the air quality for the citizens of New Jersey, it needed to ensure that the power those citizens consumed would be generated by clean resources, regardless of where those resources are located. The key is not where the resources are located, but rather whether their emissions impact air quality for the citizens of New Jersey. For

[20] The Eastern Interconnection reaches from Central Canada Eastward to the Atlantic coast (excluding Québec), South to Florida and West to the foot of the Rockies (excluding most of Texas). https://www.energy.gov/oe/services/electricity-policy-coordination-and-implementation/transmission-planning/recovery-act-0

this reason, Mr. Chang was correct in looking at New Jersey in-state emissions. PSEG's expansive review is an inappropriate attempt to unrealistically increase the value of avoided air emissions and thus the value of its ZECs.

PSEG has not met its burden to receive a ZEC subsidy. If the Board nonetheless decides to allow a ZEC payment, it should not be the full $10/MWh rate. PSEG does not need it and New Jersey's retail electric retail customers cannot afford it. The ZEC subsidy should be no higher than the social cost of carbon value of avoided emissions calculated by Mr. Chang, **[BEGIN PSEG CONFIDENTIAL]** ████████ **[END PSEG CONFIDENTIAL]**. Levitan, of course, calculated an even lower subsidy in its Preliminary Report. That lower amount would also be appropriate.

**CONCLUSION**

For the foregoing reasons the Applicants' request for Zero Emissions Credits for the Second ZEC period should be denied. If the Board decides that ZECs should be awarded they should be granted at a rate no greater than the equivalent of the social cost of carbon for avoided New Jersey emissions.

Respectfully submitted,

STATE OF NEW JERSEY
DIVISION OF RATE COUNSEL

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Director
On Behalf of the
New Jersey Division of Rate Counsel