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March 19, 2019

BOARD OF PUBLIC UTILITIES
TRENTON, NJ

Via Overnight Mail and E-mail (Aida.Camacho@bpu.state.nj.us)

Ms. Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 3rd Floor, Suite 314
P.O. Box 350
Trenton, New Jersey 08625-0350

LawP
3/21/19

**Re: I/M/O the Implementation of L. 2018, c. 16 Regarding the Establishment of a
Zero Emission Certificate Program for Nuclear Power Plants
BPU Docket No.: EO18080899**

Dear Secretary Camacho-Welch:

This law firm represents the PJM Power Providers Group ("P3") in the above-referenced matter. On behalf of P3, we respectfully submit an original and three (3) copies of the following Reply Comments to the Comments submitted by PSEG Nuclear LLC ("PSEG" or "PSEG Nuclear") on February 14, 2019.

We thank the Board for its attention to this matter.

Respectfully submitted,

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cc: BPU Service List (*via e-mail only*)

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MAR 20 2019

BOARD OF PUBLIC UTILITIES
TRENTON, NJ

STATE OF NEW JERSEY
BEFORE THE
BOARD OF PUBLIC UTILITIES

BOARD OF PUBLIC UTILITIES

MAR 20 2019

MAIL RECEIVED

IN THE MATTER OF THE
IMPLEMENTATION OF L. 2018, c. 16
REGARDING THE ESTABLISHMENT
OF A ZERO EMISSION CERTIFICATE
PROGRAM FOR ELIGIBLE NUCLEAR
POWER PLANTS

BPU Docket No. EO18080899

**REPLY TESTIMONY OF PAUL M. SOTKIEWICZ, PH.D. ON BEHALF OF
THE PJM POWER PROVIDERS GROUP IN REGARD TO PSEG REPLY COMMENTS**

I. INTRODUCTION

1. My name is Dr. Paul M. Sotkiewicz. I am the President and Founder of E-Cubed Policy Associates, LLC ("E-Cubed") and formerly served as the Chief Economist in the Market Service Division of PJM Interconnection, L.L.C. ("PJM"). I have been asked by the PJM Power Providers Group ("P3") to submit responses to PSEG's reply comments submitted on February 14, 2018.¹ I have previously submitted Initial Testimony on October 22, 2018² and responses to questions posed by the New Jersey Board of Public Utilities ("NJ

¹ PSEG, *In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants, et al.*, BPU Docket No. EO18080899; Re: *Application for the Receipt of Zero Emission Credits of Hope Creek Generating Station Submitted In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants*, BPU Docket No. EO18121337; Re: *Application for the Receipt of Zero Emission Credits of Salem 1 Generating Station Submitted In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants*, BPU Docket No. EO18121338; Re: *Application for the Receipt of Zero Emission Credits of Salem 2 Generating Station Submitted In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants*, BPU Docket No. EO18121339. February 14, 2019. ("PSEG Reply Comments")

² Paul M. Sotkiewicz, Ph.D., Prepared Comments of Paul M. Sotkiewicz, Ph.D. in *In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for*

BPU” or “BPU”) staff regarding accounting for risk in PJM’s markets on March 8, 2019 in BPU Docket No. EO18080899.³

II. PSEG DOES NOT DISPUTE THAT NEW ENTRY COMBINED CYCLE GAS RESOURCES HAVE A LOWER COST OF ABATEMENT FOR CARBON DIOXIDE EMISSIONS ACROSS THE PJM FOOTPRINT COMPARED TO THE COST OF ZECs

2. PSEG in its reply erroneously and disingenuously suggests that P3 wants to incentivize natural gas combined cycle gas resources.⁴ Nowhere in its comments has P3 suggested incentivizing natural gas combined cycle resources in asking for equivalent subsidies for gas combined cycle resources as PSEG has for its higher-cost nuclear resources that PSEG claims are uncompetitive.
3. If anything, PSEG objects to the facts, which PSEG has not disputed, that combined cycle natural gas resources need no government provided subsidies to enter or remain in commercial operation as PSEG claims the Salem and Hope Creek nuclear units require. All P3 seeks is to compete on a level playing field where the combination of cleanest and lowest cost resources can come to the fore to the benefit of New Jersey customers on their electricity bills and also displacing higher emitting resources in the PJM market.

Eligible Nuclear Power Plants, BPU Docket No. EO18080899, October 22, 2018. (“Sotkiewicz Initial Testimony”)

³ Paul M. Sotkiewicz, Ph.D., *Response of Paul M. Sotkiewicz, Ph.D. on Behalf of the PJM Power Providers Group in Regard to Staff Questions Accounting for Risk, In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants*, BPU Docket No. EO18080899, March 8, 2019. (“Sotkiewicz Risk Response”). These questions can be found in State of New Jersey, Board of Public Utilities, *Notice to All New Jersey Electric Distribution Customers, Electricity Suppliers, Electric Distribution Companies, Electric Generators, and other Stakeholders in the Matter of the Implementation of L. 2018 c. 16 Regarding the Establishment of Zero Emission Certificate Program for Eligible Nuclear Power Plants*, BPU Docket No. EO18080899, September 11, 2018. (“Notice”)

⁴ PSEG Reply Comments at 10.

4. PSEG does not dispute in its reply comments that natural gas combined cycle resources have lower costs of abatement at the margin as shown in my previous testimony where the cost to keep nuclear resources open, if they would indeed retire, has much higher costs of abatement than allowing the PJM to drive low cost new entry of combined cycle resources that do not need any outside funding. Essentially, New Jersey customers get emissions reductions at no additional cost, whereas the cost for avoiding emissions by subsidizing nuclear units would be just under \$16/ton of CO2 avoided.⁵
5. Furthermore, what is lost upon PSEG in mischaracterizing the position of P3 is that low emitting resources in PJM, regardless of their location, can displace higher emitting resources in the PJM region. PJM dispatch looks at the entire region, not state borders and similarly emissions reductions are indifferent to state boundaries. In this way, New Jersey, along with the rest of the PJM region enjoy the benefits of zero cost emissions reductions that occur as a result of wholesale market competition without paying the additional cost of ZECs.

III. PSEG DOES NOT DISPUTE THE ACCURACY OF THE EIA AND EPA DATA, BUT ONLY ASSERTS IT DIFFERS FROM THE DATA FOR THE ZEC ACT

6. PSEG asserts that data and performance information used from EPA and EIA should not at all match the data provided as part of the financial analysis under the ZEC Act. PSEG goes on to cite that only avoidable costs are included but not capital costs or the costs of risk. PSEG is trying to play a shell game with the BPU and the people of New Jersey with respect to costs.⁶

⁵ Sotkiewicz Initial Testimony at P11-13

⁶ PSEG Reply Comments at 11.

7. First, PSEG has not taken the time and effort to read my initial testimony carefully. The direct EIA data provided is not cost data, but rather data on the size of the Hope Creek and Salem units as well as their generation output. This is data that PSEG provides to the EIA through various surveys so I would assume it is correctly submitted by PSEG. If PSEG is disputing the validity of this data, then they are not providing the correct data to EIA as they should.
8. Second, an examination of the EPA data cited for use in my previous testimony is likely to include capital costs as these costs over time have come down considerably and match the cost decline, mostly for going forward capital expenditures for nuclear resources as reported by NEI.⁷ Furthermore, the data being used by EPA is coming directly from through the EIA's Annual Energy Outlook.⁸ And the magnitude changes in the EPA data from 2013 to 2018 are consistent with the cost reductions cited by NEI.
9. Second, any capital expenditures that have already been made in previous years are sunk costs and cannot be considered going forward costs as I explained in my previous testimony.⁹ From the NEI data it is not possible to tell if the capital cost contribution is

⁷ Nuclear Energy Institute, *Nuclear Costs in Context 2017*, August 2017, at 3. Available at <https://www.nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/nuclear-costs-in-context-2017.pdf>. For the 2018 update see *Nuclear Costs in Context 2018*, October 2018, at 3. <https://nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/nuclear-costs-context-201810.pdf>

⁸ United States Environmental Protection Agency ("US EPA"), *Documentation for EPA's Power Sector Modeling Platform v6 Using the Integrated Planning Model*, May 2018, Chapter 4 Generation Resources, at 4-44. Available online at https://www.epa.gov/sites/production/files/2018-08/documents/epa_platform_v6_documentation_-_all_chapters_august_23_2018_updated_table_6-2.pdf. For the previous documentation see United States Environmental Protection Agency, *Documentation for EPA Base Case v. 5.13 Using the Integrated Planning Model* ("EPA Base Case v. 5.13"), Chapter 4 "Generating Resources", at 4-70, November 2013. Available electronically at https://www.epa.gov/sites/production/files/2015-07/documents/chapter_4_generating_resources_0.pdf.

⁹ Sotkiewicz Initial Testimony at P40-41.

related to returns and recovery of already sunk capital costs, or if these are new capital expenditures that need to be made in each year.

10. Third, SEC filings made by PSEG do not mention any figures for going forward capital costs that need to be incurred and if anything, have indicated a slashing of capital expenditures.¹⁰ Fourth, risk is not a cost that can be readily measured and is at best a subjective with views that can differ widely, but should already be embedded into the cost of capital and can be mitigated through prudent maintenance practices.¹¹
11. PSEG has not denied the veracity of the EPA or EIA inputs themselves for what they actually are. It would be surprising if they did as these are values that are reported to in survey forms or come from monitoring equipment that is submitted to EIA or FERC or EPA and then published by these agencies.

IV. PSEG NEW JERSEY NUCLEAR RESOURCES WILL REMAIN PROFITABLE EVEN MAKING A FURTHER ENERGY MARKET BASIS ADJUSTMENT

12. PSEG takes issue with the use of Eastern Hub prices to project future profitability and make the strong assertion that my previous testimony cannot be trusted since the basis differentials between the Eastern Hub and the Salem and Hope Creek generator busses

¹⁰ PSEG 8-K filing, March 2, 2018. Available at <https://www.sec.gov/Archives/edgar/data/788784/000119312518068154/d524308d8k.htm>. “As a result of recent postponements in the New Jersey legislative process regarding a bill that would sufficiently value the attributes of nuclear generating stations serving New Jersey and the decline in the market energy revenues, Exelon Generation and PSEG Nuclear agreed, at a co-owners meeting held on February 28, 2018, to *cancel the funding of future capital projects at the Salem generating station that are not required to meet Nuclear Regulatory Commission or other regulatory requirements or that are not required to ensure its safe operation*. Exelon Generation and PSEG Nuclear agreed that the funding of these projects may be restored when and if legislation is enacted in New Jersey that sufficiently values the attributes of nuclear generation and Salem benefits from such legislation.” (emphasis added) “PSEG Nuclear anticipates that similar actions may be appropriate at its wholly-owned Hope Creek generating station in New Jersey as well, and the assessment of this is continuing.”

¹¹ Sotkiewicz Initial Testimony at P16-18, P77-83. See also Sotkiewicz Risk Response.

had not been considered.¹² But PSEG never explicitly denies these units are profitable based on the analysis of the forward curves even at these lower prices.

13. The historic basis differential from 2016 to 2018 between Eastern Hub and the Salem and Hope Creek Generator busses is -\$4.57/MWh on an annual basis as shown by PSEG and that I have confirmed from PJM LMP data. But accounting for this does not change ultimate conclusion that the PSEG nuclear units are still going forward absent any subsidies.

Table 1: Projected Average Annual Prices at the Salem and Hope Creek Generator Busses from ICE Forward Curve

	Average Prices
2019	\$30.11
2020	\$28.04
2021	\$26.19
2022	\$25.26
2023	\$25.14
2024	\$25.37
2025	\$25.98
2026	\$26.69
2027	\$27.44
2028	\$28.87

14. Table 1 provides the projected annual prices at the Salem and Hope Creek generator busses adjusting for the \$-4.57 annual basis differential between Eastern Hub and the nuclear generator busses. This should match Table 1 from my previous testimony but uniformly adjusted downward.
15. There are no changes to capacity prices or other forward financial information or fuel and avoidable costs. Table 2 provides the profitability accounting for the additional basis

¹² PSEG Reply comments at 28-29.

differential to the generator busses. Table 2 is similar to Table 4 in my previous testimony, but with total profits for the Salem and Hope Creek units combined.

Table 2: Projected Revenues vs. Costs on a \$/MWh basis and Contribution to Returns

	Energy Price (\$/MWh)	Capacity Price (\$/MWh)	Total Revenue (\$/MWh)	Fuel plus Avoidable Cost (\$/MWh)	Contribution to Returns (\$/MWh)	Total Profits for All Capacity (\$millions)
2019	\$30.11	\$7.51	\$37.61	\$26.70	\$10.91	\$336.32
2020	\$28.04	\$7.33	\$35.38	\$26.70	\$8.68	\$267.47
2021	\$26.19	\$8.03	\$34.23	\$26.70	\$7.53	\$231.96
2022	\$25.26	\$7.85	\$33.11	\$26.70	\$6.41	\$197.49
2023	\$25.14	\$8.02	\$33.17	\$26.70	\$6.47	\$199.27
2024	\$25.37	\$8.02	\$33.39	\$26.70	\$6.69	\$206.21
2025	\$25.98	\$8.02	\$34.00	\$26.70	\$7.30	\$224.95
2026	\$26.69	\$8.02	\$34.71	\$26.70	\$8.01	\$246.97
2027	\$27.44	\$8.02	\$35.46	\$26.70	\$8.76	\$269.96
2028	\$28.87	\$8.02	\$36.90	\$26.70	\$10.20	\$314.26

16. Table 2 clearly shows that the PSEG nuclear units are projected to remain profitable 10 years into the future given projected capacity prices and forward energy prices. As shown in the last column, providing an additional \$300 million per year to these resources would only serve to increase the profits by more than double what they are projected to earn in the PJM markets into the next decade.
17. While PSEG has stated in its reply that it will shut own and retire the Salem and Hope Creek nuclear units, this is an empty threat from an economic perspective. As noted in my previous testimony, so long as going forward costs are covered and there are operating profits as shown in Table 2, it is not rational to shut these units down.¹³ This is especially true if there are sunk capital costs incurred in previous years that are yet to be recovered.

¹³ Sotkiewicz Initial Testimony at P 8-10 and P39-41.

18. For the sake of example only, suppose there are \$50 million in sunk capital costs that need to be recovered in each year. Table 2 shows these sunk costs are easily recovered. However, if the nuclear units shut down, shareholders would incur a loss of \$50 million each year in effect. Such a strategy is clearly not profit maximizing nor is it in the interest of PSEG shareholders when they could cover those sunk costs plus additional profits.

V. PSEG’S THREATS TO RETIRE NEW JERSEY NUCLEAR RESOURCES ARE NOT CREDIBLE

19. In its 10-Q filing for the second quarter (“Q2”) 2017, PSEG has not made any definitive statements that it would retire its New Jersey nuclear units, though it did consider the implications of such a shut down and the losses it would incur due to the inability to cover sunk costs and incur other retirement related costs:

“If the market trends noted above continue or worsen, Power’s New Jersey nuclear generating units could cease being economically competitive which may cause Power to retire such units prior to the end of their useful lives. *The costs associated with any such potential retirement, which may include, among other things, accelerated D&A or impairment charges, accelerated asset retirement costs, severance costs, environmental remediation costs, and additional funding of the NDT Fund would likely have a material adverse impact on PSEG’s and Power’s future financial results and cash flows.*” (emphasis added).¹⁴

20. PSEG is admitting in its 10-Q filing that they would incur losses from shutting down its New Jersey nuclear resources, essentially admitting that shutting down these resources would be harm shareholders. In fact, PSEG made no such statements regarding their nuclear resources in New Jersey until it released its 2017 10-Q for the first quarter of

¹⁴ PSEG 10-Q for Q2, 2017, Exhibit R10. Available at <https://www.sec.gov/Archives/edgar/data/788784/000078878417000019/R10.htm>.

2017 in April 2017.¹⁵ And yet, the corresponding presentation to investors for the earnings call throughout 2017 never once mention the possibility that the New Jersey nuclear resources could be financially at risk.¹⁶ In fact, even in the most recent earnings call in February 2019, there is no mention of nuclear retirements, only the reporting that PSEG has applied to receive ZECs.¹⁷

21. Given the different stories being told in the 10-K and 10-Q filings telling a story of financial challenges for the New Jersey nuclear units, while there is a complete absence of any such declarations or concerns as part of the earnings call presentations suggests there is little intent to actually retire the nuclear resources in New Jersey.

A. The SEC Has Even Asked Questions Regarding the Risk of Potential Retirements without More Specific Information

22. In a letter to PSEG in August 2018 regarding the 2017 10-K, the SEC asks PSEG for clarification about its statements on nuclear unit retirement risk:

We note your disclosures in note 3 to the financial statements regarding the challenges faced by your nuclear generating stations and the resulting potential for early retirement or shutdown of the Salem and Hope Creek nuclear units, as well as your disclosure that Power recorded an increase to its ARO liabilities primarily due to a higher assumed probability of early retirement of its nuclear units. *Please tell us your consideration of providing additional critical accounting policy disclosure that allows for an assessment of the probability, magnitude and timing of future material charges associated with early*

¹⁵ PSEG 10-Q for Q1, 2017, Exhibit R10, available at <https://www.sec.gov/Archives/edgar/data/788784/000078878417000007/R10.htm>. It should be noted this is not in the body of the 10-Q report, but in an Exhibit.

¹⁶ For example, see PSEG, PSEG Earnings Conference Call 4th Quarter and Full Year 2017, February 23, 2018. On slide 4, the operational excellence of Hope Creek is mentioned and all that is mentioned about policy in New Jersey is continued operation of nuclear in the context of state policy goals. Nothing is stated about retirement of nuclear resources or that they are financially challenged. Available at <https://www.sec.gov/Archives/edgar/data/788784/000119312518054974/d532537dex991.htm>.

¹⁷ PSEG Earnings Conference Call 4th Quarter and Full Year 2018, February 27, 2019. Available at <https://www.sec.gov/Archives/edgar/data/788784/000119312519052958/d710229dex991.htm>.

retirement or shutdown of these units, along with a description of the specific events and/or changes in circumstances that could reasonably be expected to result in early retirement or shutdown. (emphasis added).¹⁸

23. The implication of this inquiry by the SEC is to question what would be driving any possible retirements and that there is simply not sufficient information for investors to assess the true financial conditions of the PSEG nuclear resources in New Jersey and the intent of PSEG to retire these resources or not. In fact, the SEC reminds PSEG, “We remind you that *the company and its management are responsible for the accuracy and adequacy of their disclosures*, notwithstanding any review, comments, action or absence of action by the staff.” (emphasis added).¹⁹ PSEG’s response to this letter provides the additional information sought by the SEC but remains “non-committal” on the actual retirement decisions that could be made.²⁰

B. The Threat of Retirement is Being Driven by the Language of the ZEC Act and Not the Actual Economics of the Nuclear Resources

24. In fact, it was not until the passage of the New Jersey ZEC Act, and the requirement that there be an attestation that the resources would shut down absent the ZECs that such language showed up in PSEG SEC filings, in particular for its 10-K for 2018. PSEG asserted it provides an attestation that sounded more like a “check the box” statement than a real statement that these units would be shut down.

¹⁸ United States Securities and Exchange Commission, Letter to Ralph Izzo Re: Public Service Enterprise Group Incorporated PSEG Power LLC Form 10-K for Fiscal Year Ended December 31, 2017 Filed February 26, 2018 File Nos. 1-9120 and 1-34232, August 21, 2018, p. 1. Available at <https://www.sec.gov/Archives/edgar/data/81033/000000000018025984/filename1.pdf>.

¹⁹ *Id.* p. 2.

²⁰ PSEG Letter to William H. Thompson, Branch Chief, Office of Consumer Products, Division of Corporation Finance, U.S. Securities and Exchange Commission, Re: Public Service Enterprise Group Incorporated PSEG Power LLC Form 10-K for the Fiscal Year Ended December 31, 2017 Filed February 26, 2018 File Nos. 1-09120 and 1-34232. Available at <https://www.sec.gov/Archives/edgar/data/788784/000119312518265112/filename1.htm>.

In May 2018, the governor of New Jersey signed legislation, referred to as the ZEC legislation, that recognizes that nuclear power is a critical component of New Jersey's clean energy portfolio and an important element of a diverse energy generation portfolio that currently meets approximately 40 percent of New Jersey's electric power needs. The ZEC legislation creates a ZEC program to be administered by the BPU.

In December 2018, Power submitted applications to the BPU for the Salem 1 and 2 and Hope Creek nuclear plants. *As required, Power's three applications each included a certification pursuant to which Power confirmed that each of the Salem 1, Salem 2 and Hope Creek plants will cease operations within three years absent a material financial change.* Power's submittal further attested that the nuclear plants are not expected to cover their costs and *operating, and market risks as defined in the ZEC legislation*, absent a material financial change.

In the event that any of the Salem 1, Salem 2 and Hope Creek plants is not selected to receive ZEC payments in April 2019 by the BPU and do not otherwise experience a material financial change, Power will take all necessary steps to retire all of these plants at or prior to their refueling outages scheduled for the Fall 2019 in the case of Hope Creek, Spring 2020 in the case of Salem 2 and Fall 2020 in the case of Salem 1. (emphasis added)²¹

25. Furthermore, PSEG has stated in its most recent 10-K filing for 2018 that it has already purchased fuel for the operation of the New Jersey nuclear units through 2022 as hedge against nuclear fuel prices.²² Retiring the nuclear units early would thus add to the losses as fuel that has already been purchased would go unused and simply add to the losses for

²¹ PSEG, 2018 10-K Filing, February 26, 2019, p. 31. See also p. 47. Available at <https://www.sec.gov/Archives/edgar/data/788784/000078878419000005/pseg201810k.htm>.

²² PSEG, 2017 10-K Filing, February 26, 2018. Available at <https://www.sec.gov/Archives/edgar/data/788784/000078878418000004/pseg201710kq4.htm>

P. 136 states, "Power's nuclear fuel strategy is to maintain certain levels of uranium and to make periodic purchases to support such levels. As such, the commitments referred to in the following table may include estimated quantities to be purchased that deviate from contractual nominal quantities. Power's nuclear fuel commitments cover approximately 100% of its estimated uranium, enrichment and fabrication requirements through 2020 and a significant portion through 2022 at Salem, Hope Creek and Peach Bottom."

retiring the nuclear resources which would amount to \$800 million dollars if the resources all retired this year.²³

26. In short, up to the 2018 10-K, there and been no definitive statement provided that the Salem and Hope Creek units would be shut down and retired, and at such an early date. As noted in the above quoted 10-K filing, PSEG only made these statements because the New Jersey ZEC Act required such an attestation. And given previous statements regarding the losses that would be incurred from shutting down the nuclear units early, the threat of retirement is only ruse to satisfy the requirements of the ZEC Act and given the forward outlook for the profitability of the nuclear units, the threat of retirement is simply not credible.

C. It is Practically Infeasible for PSEG to Buy Out its Capacity Commitments for through the 2021/2022 Delivery Year through Incremental Auctions

27. PSEG asserts that it would be able to buy out its current capacity commitments for the 2019/2020, 2020/2021, and 2021/2022 Delivery Years in Incremental Auctions or through bilateral transactions.²⁴ In theory this is factually accurate. In practice, this is essentially impossible.
28. First, the 2019/2020 Delivery Year will commence on June 1, and it is too late to buy out of capacity commitments with the Third Incremental Auction which just had results posted on March 8, 2019.²⁵ According to the results, in EMAAC, there were just over 1,500 MW of sell offers, which is not even half of the capacity value of the Salem and

²³ *Id.*

²⁴ PSEG Reply Comments at 35-36.

²⁵ PJM Interconnection, LLC, *2019/2020 RPM Third Incremental Auction Results*, March 8, 2019. Available at <https://pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2019-2020/2019-2020-third-incremental-auction-report.ashx?la=en>.

Hope Creek nuclear units.²⁶ So as a practical matter, it would have been impossible for the New Jersey nuclear units to have bought out its entire capacity commitment. Moreover, if PSEG wanted to be ensured that it could buy out as much capacity as possible, it would likely have had to put in buy bids at the BRA clearing price or higher in order to buy out as much of its commitment as possible. Such a strategy would lead to even further losses for PSEG potentially to buy out their capacity commitments.

29. Second, for the 2020/2021 Delivery Year, the level of sell offers was only 1,738 MW,²⁷ again, not even half of the capacity commitment for the Salem and Hope Creek units. Again, it would be practically impossible for Salem and Hope Creek to buy out of its commitments as there were simply not enough sell offers available. Moreover, given the low clearing prices and the fact that only 140 MW of buy bids cleared,²⁸ it means that PSEG would again need to place buy bids into the incremental auctions up to the BRA clearing price or higher just to clear a portion of its committed capacity which would lead to losses that need not be incurred.
30. So, even if Salem and Hope Creek could possibly buy out of just a portion of its capacity commitment in Incremental Auctions, it would need to do so at a break-even price or even at a price above the BRA price. The implication of this would be for Salem and Hope Creek to take a loss from foregone capacity revenues. Moreover, if they could not buy out their entire commitment and retired, they would be subject to capacity

²⁶ *Id.* at 4, Table 2.

²⁷ PJM Interconnection, LLC, *2020/2021 RPM First Incremental Auction Results*, September 21, 2018, at 3, Table 2. Available at <https://pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2020-2021-first-incremental-auction-report.ashx?la=en>.

²⁸ *Id.* at 6, Table 5.

commitment penalties for any capacity commitment they could not buy out of in Incremental Auctions which would simply add to their losses.

31. Finally, even if PSEG could buy out of their capacity commitments bilaterally, the results of the 2021/2022 Base Residual Auction show only 2,756 MW UCAP offered but did not clear.²⁹ These resources did not clear because their offers were above the market clearing price. So, even if PSEG could bilaterally contract with all non-cleared capacity, it would cost them more than the Base Residual Auction price to execute such a strategy and it would still leave additional capacity (approximately 700 MW UCAP) that would be subject to commitment penalties only adding to the losses from retiring when it is not rational to do so.

VI. CONCLUSIONS


32. There is no merit in PSEG's claim that absent out-of-market revenues (aka subsidies) in the form of ZECs they will be unable to remain in commercial operation and will retire.
33. First, PSEG does not dispute the accuracy of the data being used in the analysis but simply hides behind the language on the ZEC Act that asks for other information on risks and other matters that are purely subjective and would not show up in any operational or cost data as they are recorded and submitted.
34. Second, even accounting for the basis differential between PJM Eastern Hub and the New Jersey nuclear generator busses, as PSEG has noted, does not change the conclusion about ongoing profitability of the Salem and Hope Creek units.

²⁹ PJM Interconnection, LLC *2021/2022 RPM Base Residual Auction Results*, Table 4 at 15. Available at <https://pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2021-2022/2021-2022-base-residual-auction-report.ashx?la=en>.


35. Third, an examination of SEC filings by PSEG reveals that the threat of retirement has only been fully articulated as a result of the requirements of the ZEC Act. And prior to this, PSEG has explicitly stated that the early retirement of Salem and Hope Creek would lead to adverse financial consequences for PSEG and its shareholders due to the sunk costs they would need to cover absent remaining in commercial operation and those associated losses.
36. Finally, any threats to retire and buy out commitments in the 2019/2020, 2020/2021, and 2021/2022 Delivery years through incremental auctions or bilateral transactions is simply not feasible and thus not credible. Such a strategy would only add to the losses that would be incurred by retiring the nuclear facilities. These losses are otherwise avoided by remaining in commercial operation.

**IN THE MATTER OF THE
IMPLEMENTATION OF L. 2018, c. 16
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OF A ZERO EMISSION CERTIFICATE
PROGRAM FOR ELIGIBLE NUCLEAR
POWER PLANTS**

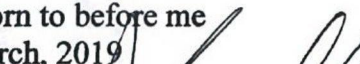
PREPARED REPLY TESTIMONY OF PAUL M. SOTKIEWICZ, PH.D.


Paul M. Sotkiewicz, Ph.D.

Subscribed and sworn to before me
this 19th day of March, 2019



Notary Public for
the State of Florida



sep 6 2021

