

APPENDIX

Public Service Enterprise Group

**Joint Meeting of the New Jersey State Assembly Telecommunications and Utilities Committee and
Senate Environment and Energy Committee, For Consideration Of A-5330/S-3560,
Establishing A Nuclear Diversity Certificate Program**

Wednesday, December 20, 2017

Good morning, Chairman Smith, Chairman DeAngelo and committee members of the Senate Energy and Environment Committee, and the Assembly Telecommunications and Utilities Committee. My name is Ralph Izzo, Chairman, President and CEO of Public Service Enterprise Group (PSEG), a diversified energy company headquartered in Newark, New Jersey. Thank you for the opportunity to testify on the Nuclear Diversity Certificate legislation, S-3560, sponsored by Senators Sweeney, Smith and Van Drew, and A-5330, sponsored by Assembly members McKeon, Burzichelli, Taliaferro and DeAngelo.

Introduction

The future of nuclear power is a critical issue facing the electric industry in New Jersey -- and by extension, the customers we serve. At risk are the diversity, resiliency and air emissions attributes of the electric generation resource mix serving New Jersey. Reducing this risk is directly and appropriately addressed in the bill under consideration.

Under current financial projections, the nuclear baseload generation that serves New Jersey will close long before the end of its useful life. Passage of the bill before you would meet that threat at a reasonable and controllable cost, while protecting New Jersey's electric customers from the substantial costs that would result from the premature retirement of that capacity. Those costs include increased emissions of pollutants, uncertainty regarding customers' sources of electric power, as well as higher prices. We urge you to adopt this measure for the reasons I will discuss below.

In this written testimony, I outline the economic issues that baseload nuclear power plants are facing in the United States, and the costs to New Jersey that would accompany the premature retirement of those plants. I will then explain why state action is necessary at this time, notwithstanding the possibility of a federal solution to the fundamental problems this bill addresses. Finally, I will summarize the bill -- what it does and how it works -- and describe the extensive and well-designed customer protections included in the bill.

PSEG and PSEG Power's Nuclear Power Plants

PSEG is among the largest energy companies in the United States. Our utility affiliate, Public Service Electric and Gas Company, or PSE&G, is the state's largest electric and gas utility. It serves 2.2 million electric customers and 1.8 million gas customers in New Jersey, many of whom reside in the state's densely populated urban areas.

Another of our subsidiaries, PSEG Power, owns and operates approximately 11,000 megawatts of electric generation capacity. PSEG Power maintains a diverse and well-balanced portfolio of electric power generation resources to meet customers' needs, including nuclear, natural gas, coal and solar generation. While we currently are building three new natural gas plants in three states, PSEG in fact planned and built its diverse generation portfolio across many decades. Thus, our belief in the importance of fuel diversity to our customers stretches back to the earliest days of our company.

The 3,500-megawatt Salem and Hope Creek nuclear generating stations in southern New Jersey constitute the nation's second-largest nuclear site and currently produce approximately 35 percent of the electricity consumed in New Jersey and nearly half of New Jersey's generation. However, after more than 30 years of operation, PSEG's nuclear plants are seeing a future where we will not be earning enough to cover our costs. While we have not announced their closure, we have made it clear they are on an unsustainable path.

At this moment – today – our nuclear plants are in the black. That's due in part to the operational excellence of our workforce, who work tirelessly to improve the efficiency with which our units are able to produce electricity. But it is due primarily to the fact that our company was able to pre-sell electricity the past three years under contracts that are above current market prices. Those contracts are finite, and some of those contracts are set to expire before the end of 2017 - most by the end of 2018. Unless circumstances change, these plants will no longer be covering their costs within the next two years. Thus, without intervention – without a thoughtful, economic safety net – PSEG will be forced to close its New Jersey nuclear plants.

The Economic Issues Facing Baseload Nuclear Generation, And The Costs Of Premature Closure

In the Mid-Atlantic region and in New Jersey, large baseload nuclear plants that fueled the economy for decades and are a critical part of the energy infrastructure are becoming uneconomic. We believe this is because their significant attributes, providing fuel supply diversity as well significant, measureable environmental benefits, are not priced in the marketplace. Several nuclear plants in the United States have already shut down prematurely and owners of other plants have announced their plans to retire.

The economic stress facing PSEG's nuclear plants has a host of aggravating factors, including significant additional regulatory costs imposed on nuclear plant operators by the Nuclear Regulatory Commission over the past 15 years, the proliferation of non-dispatchable renewable and demand-side resources enabled through federal and state subsidies, renewable portfolio standards, and other regulatory treatments such as net-metering. However, a major factor is that the environmental and fuel diversity attributes of nuclear power are not valued, which tilts the playing field in favor of the production of

electricity using currently low-cost natural gas. When it comes to energy, however, short-term cost is by no means the only factor we should be focused on—as New Jersey has recognized in promoting generators of solar electric power through the issuance of solar renewable energy certificates.

Nuclear power has many beneficial long-term attributes that are vitally important to New Jersey. Nuclear energy is carbon-free, it contributes to fuel diversity and a resilient energy supply, it fuels New Jersey's economy to the tune of more than \$800 million a year and, if the nuclear plants New Jersey relies on were to close and these important attributes are lost, it would cost more to replace them than it would to provide an economic safety net to preserve them. The expert economic studies that have been presented to you as you have considered this issue identify quantitative benefits to New Jersey far in excess of the costs of the proposed Nuclear Diversity Certificate program.

Direct Economic Benefits

For example, IHS Markit, a consulting group with extensive knowledge and modeling capabilities concerning the interaction between regional power system demand and supply, recently completed an assessment of the impact on New Jersey consumers and the New Jersey economy of the premature retirement of the Salem and Hope Creek nuclear plants. The study found that the results of the plants' premature retirement would include:

- \$530 million per year in public health and environmental costs from increased air and carbon pollution, including an annual increase in CO₂ emissions of 13 million tons;
- More than \$400 million per year in higher electricity costs;
- \$820 million per year reduction in New Jersey's GDP; and
- The loss of 6,100 in-state jobs (direct and secondary) and \$37 million in annual state tax revenues.

Other economic experts have reached similar conclusions. An analysis by The Brattle Group, an economic consulting firm specializing in electric power market issues, reached conclusions that were similar to IHS Markit's with respect to the additional costs of increased CO₂ emissions, the plants' contribution to statewide economic activity and jobs and the impact on consumers' power bills if the plants were to prematurely retire.

Benefits Of A More Diverse Electric Generation Fuel Supply

In addition to these issues, the most critical concern addressed by the proposed bill is the need to ensure the resiliency of electric supply against all manner of unforeseen contingencies, to protect the system from high-impact/low-probability events. If PSEG's nuclear plants were to close, the overwhelming majority of remaining generation serving New Jersey would be natural gas-fueled. Whether it's a polar vortex, a cyber intrusion, an accidental or purposeful fuel supply interruption, or another event we can't imagine today, the utility mantra has always been to have an additional line of defense to deal with unexpected events. Indeed, the IHS study that I mentioned concluded that the cost to New Jersey consumers attributable to the less resilient power supply in place after closure of these plants

would be as much as \$230 million for each disruptive event of similar severity and duration as the January 7, 2014 polar vortex, and as much as \$790 million for a 24-hour disruption of similar severity. IHS also identified additional costs due to the greater PJM production cost variability associated with a move toward an increasingly gas-fired electric power supply. At PSEG, it's in our DNA to strive to build a system where we are not overly reliant on any single facility – or any single fuel source – to ensure the availability of the life-giving commodity our customers rely on.

The Need For A State Solution

At PSEG, we have worked tirelessly at the federal and regional level, generally before the Federal Energy Regulatory Commission (FERC or the Commission) and at PJM, to address a variety of issues affecting nuclear power in our state and region. While I have stated repeatedly that a national or regional market solution that values the environmental and fuel diversity attributes of nuclear is preferable, the fact is that PJM has failed to adopt such a solution and has no clear plan or timetable to do so under current projections. PSEG's nuclear plants will be cash negative in two years. If there are not significant, meaningful changes, we cannot be expected to operate on that basis.

A-5330/S-3560 Will Help Preserve The Diversity, Resiliency, And Air Emissions Attributes Of New Jersey's Electric Generation Resource Mix At Reasonable And Controllable Cost, With Consumer Protections That Compare Favorably With Other State Programs

The bill introduced by the Legislature provides for a robust process, directed and overseen by the New Jersey Board of Public Utilities (Board or BPU), to establish the parameters of the Nuclear Diversity Certificate (NDC) program. The bill ensures that only plants that are demonstrably in need, that can certify to that need within 30 days of the bill's enactment, and whose closure would result in demonstrable harm to New Jersey, will receive support. The Board would establish the program parameters within 180 days after the effective date of the bill. By a date seven (7) months after the effective date of the act, nuclear power plants seeking to participate in the program must submit their applications to the Board. There is a \$250,000 application fee per unit and this fee will be used to offset the Board's costs to structure and implement the program. No later than approximately ten (10) months after the effective date of the bill the Board shall complete its administrative preparations and formally commence the program by issuing an order establishing a list of the eligible nuclear power plants and identifying which ones were selected to receive NDCs. The Board may find that no nuclear power plant qualifies.

To be certified as eligible, the applicant plant is required to make several showings ensuring that only plants that actually benefit New Jersey, and that are genuinely in financial need, will receive support under the NDC program. These showings include that the plant:

- is licensed by the Nuclear Regulatory Commission (NRC) through 2030 or later, assuring that plants that receive support will be able to continue providing emissions-free electricity well into the future;
- demonstrate to the satisfaction of the Board that it makes a significant, material contribution to the: (1) diversity and resiliency of the resource mix serving New Jersey

customers, and (2) New Jersey air quality, which contribution would be lost if the plant were to prematurely retire;

- demonstrate, through certified financial projections to the BPU, that it is in financial peril of closure, and certify that the plant will cease operations within three (3) years unless it experiences a material financial change; and
- certify annually that it receives no direct or indirect payments or credits under federal or state law for fuel diversity or environmental attributes that will eliminate the need for premature retirement.

Following the identification of eligible plants, the BPU will be required to rank-order all eligible nuclear plants, based on the eligibility criteria listed above as well as sustainability and long-term commitment to operate. The BPU will then select plants to receive NDCs until the total number of MWh produced by those plants in Energy Year 2017 equals or exceeds 40 percent of total energy sales by New Jersey electric utilities, ensuring that the share of New Jersey consumption provided by zero-emission nuclear power plants remains at its current level; the plant that puts the total over 40 percent will not be selected.

Similar to the issuance of RECs and SRECs for qualified renewable projects, selected nuclear plants will receive a number of NDCs in each energy year equal to the number of MWh produced by those plants in that energy year. A selected plant will be eligible to receive NDCs for a three-year term, although the first term will be three years plus several months, because the program might begin in the middle of an energy year. If the plant does not operate it will not receive NDCs. Importantly, once a plant is recognized as eligible for support, that needs test would be reviewed and re-assessed every three years. In other states, payments are guaranteed to flow for 10 to 12 years, with no review period.

In order to compensate the selected plants for their clean energy output, retail customers of New Jersey's electric distribution companies (EDCs) will be assessed an annual, non-bypassable charge of \$0.004 per kWh, although that figure may be reduced by the Board in its discretion if it determines a reduced payment will prevent the premature retirement of the selected plants. The Board may also reduce the value an NDC (which value cannot, incidentally, go up) to offset any amount a selected nuclear plant receives under any federal, state or regional program for its fuel diversity, resilience or environmental attributes. This creates a fund of dollars. That fund (in \$) is divided each year by the output of the selected nuclear plants or 40 percent of the total electric usage in New Jersey (whichever is higher) (in MWh), and this will create the value of the NDC (in \$/MWh). Given current usage and nuclear output, this figure will generally be approximately \$10 per MWh, which is an excellent value in exchange for the environmental, fuel diversity, and resilience benefits provided by the continued operation of nuclear power plants that serve New Jersey.

As described above, while providing necessary support to plants that can demonstrate financial need and specific benefits to New Jersey, the bill also contains important limitations and customer protections. No funds flow until the BPU determines there is a financial need, and as noted, the Board can re-evaluate that need, as well as the satisfaction of all other eligibility criteria, every three (3) years. Through this process, the bill ensures that no funds will flow until the plant owner files a certification that

it will close the plants within three (3) years if there is no material change. Similarly, the NDC price can be reduced by any direct or indirect payments received by a selected plant for its fuel diversity and environmental attributes through any federal or state regulation or regional compact. In addition, the bill requires that any plant selected to receive NDCs must remain open during the period it is receiving NDCs, and requires the plant to reimburse the state for payments received during the three-year period it is receiving NDCs if it closes during that period, except in certain circumstances where that closure would be justified.

PSEG supports this effort by the New Jersey Legislature to squarely face this fundamental issue and to take steps to preserve the nuclear power plants serving the state's electricity consumers before irreversible steps are taken to shut down these vital resources. I thank you for the opportunity to share the views of my company this morning, and I would be glad to answer any questions you may have.

Ralph Izzo
Chairman of the Board, President
and Chief Executive Officer

Public Service Enterprise Group Incorporated
80 Park Plaza, T-4, Newark, NJ 07102



December 19, 2017

The Honorable Wayne DeAngelo
The Shoppes at Nottingham Pointe
4621 A Nottingham Way
Hamilton, NJ 08690

Dear Assemblyman DeAngelo:

I am writing in response to PJM Interconnection LLC's letter of December 8, 2017, regarding a bill pending before the New Jersey Legislature that would provide value for the environmental and fuel diversity attributes of nuclear power plants.

In its letter, PJM summarizes its recent update to the regional capacity market following the 2014 Polar Vortex, as well as additional changes still under consideration in the area of energy price formation – and asks the Legislature to consider these details as it deliberates the Nuclear Safety Net bill (S3560/A5330).

Unfortunately, PJM fails to provide any meaningful policy solutions for New Jersey, nor does PJM commit to any long-term actions that would actually address the urgent issues facing nuclear energy in the state.

First, preserving fuel diversity in New Jersey's electric supply is critically important. A recent PJM study of the region's natural gas-delivery system found that the loss of one gas pipeline in the Mid-Atlantic region would result in the loss of 11,000 MW of electric generation, and the loss of another pipeline in the region would result in the loss of 10,000 MW — together, roughly equivalent to the summer peak of the entire state of New Jersey.

Another PJM report, "PJM's Evolving Resource Mix and System Reliability" (March 2017), recognized that "[r]elying too heavily on any one fuel type may create a fuel security or resilience issue" and that "a moderate level of diversity helps to ensure the system's ability to withstand unforeseen system shocks," including "both man-made and natural disasters."

The North American Electric Reliability Corporation (NERC), America's reliability watchdog organization, informed the U.S. Energy Department in May that "premature retirements of fuel-secure baseload generating stations reduces resilience to fuel supply disruptions" and recently published a report recommending that "[r]egulators should consider fuel diversity as they evaluate electric system plans and establish energy policy objectives."

More simply: nuclear plants increase reliability and resiliency through greater fuel diversity, which state and federal regulators should keep in mind when considering new energy policies, such as Nuclear Diversity Credits.

In New Jersey, the Board of Public Utilities and the Legislature are ultimately responsible for ensuring that the lights stay on in the state. Therefore, it is prudent for the state to invest in preserving a diverse array of generation technology – an all-of-the-above strategy – rather than becoming over-reliant on natural gas-fired power plants.

PJM asserts that it has previously adopted reforms intended to reward reliable operation - and may adopt other reforms in the future to value the fuel diversity or resilience benefits of nuclear plants. But PJM's past changes do not allow for the continued operation of nuclear power plants supplying energy to New Jersey – nor do they attempt to value the environmental or fuel diversity benefits these plants provide.

As for the possibility of future reforms, PJM points to no concrete proposals that have been developed, considered by stakeholders or submitted for approval. And PJM has no approved timeline, schedule or plan to undertake such actions. New Jersey cannot afford to wait.

Second, PJM ignores the environmental benefits provided by existing nuclear power plants. Nuclear plants produce large amounts of electricity without emitting carbon or other air pollutants. If a nuclear plant retires, it will be largely replaced by fossil fuel-burning plants. The result will be increased emissions of hazardous air pollutants negatively affecting public health, including emissions of nitrogen oxides, sulfur oxides, particulate matter and mercury, as well as carbon dioxide.

Renewable facilities, such as solar and wind, cannot be built quickly enough or at the scale needed to replace even a single retiring nuclear plant at reasonable cost and without a significant increase in air emissions. Indeed, over the last 12 years, New Jersey has spent \$2.2 billion to support renewable generation that last year provided only 2.8 TWh of electricity. By contrast, the proposed legislation will support up to 25 TWh of nuclear generation at a fraction of the cost.

As a result, New Jersey has a strong environmental interest in preventing the premature retirement of nuclear power plants, and the bill under consideration is a cost-effective way of doing so.

PJM's markets have co-existed for years with renewable support programs, and they also include generators that receive cost-of-service make-whole payments from state regulators in Virginia, Indiana and West Virginia. If PJM's markets can co-exist with such programs, then the markets can co-exist, as well, with state programs that value the environmental benefits provided by nuclear plants.

The retirement of a nuclear plant is irreversible. Once these unique resources are gone, they are gone forever. PJM CEO Andy Ott told the National Association of Regulatory Utility Commissioners in July 2017 that "if we fast forward 10 years and we see some nuclear units

retire on economics, are we going to look back with regret that we lost a zero emission resource? ... [T]hat's a good, a legitimate question to ask."

Two other regional grid operators, the Midcontinent Independent System Operator (MISO) and the New York Independent System Operator (NYISO), have publicly expressed support for nuclear credit programs in Illinois and New York, similar to New Jersey's proposed bill, and Connecticut recently signed into law a program to preserve nuclear generation.

Nor is there reason for New Jersey to wait.

The proposed legislation includes provisions that would allow the BPU to reduce Nuclear Diversity Credit payments to nuclear plants in the event that another federal, state or multi-state program begins compensating their environmental, fuel diversity or resiliency benefits.

Additionally, the BPU can reassess every three years whether nuclear plants should continue to receive NDCs. Thus, the proposed legislation provides sufficient flexibility for New Jersey to account for any new policy developments, whether by PJM or another entity.

We urge the Legislature to pass this important legislation.

Sincerely,



C: Assemblyman Wimberly
Assemblyman Egan
Assemblyman Houghtaling
Assemblywoman Phoebus
Assemblywoman Pintor-Marin
Assemblyman Rumpf
Assemblyman Zwicker



The Nuclear Safety Net Bill is Good for New Jersey

It will cost more
to replace the plants
than to preserve them.

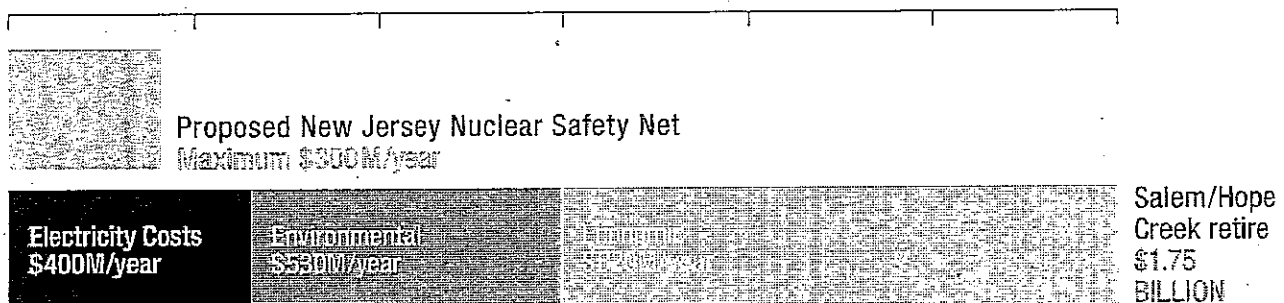
The cost of losing New Jersey's nuclear plants dwarfs the cost of preserving them by approximately 6 to 1.

The Nuclear Safety Net Bill No. S-3560/A-5330 will ensure the continued operation of nuclear power plants that help keep energy bills affordable and the power system resilient while driving the New Jersey economy – all without creating any air pollution.

Legislation provides significant consumer protections – if the need goes away, the support goes away.

- The owners of a plant must open their books to New Jersey regulators to demonstrate a financial need; that need will be recertified every three years.
- Payments to a plant would be reduced by any direct or indirect support received through a federal or multistate program to support nuclear.
- Participating plants would be obligated to operate while receiving payments.

The price of New Jersey losing nuclear would be approximately 6 times the cost of preserving it.



A brand-new study by IHS Markit finds

- As much as \$230 million for events similar to the January 2014 Polar Vortex
- \$400 million a year in higher electricity costs
- \$530 million a year in public health and environmental costs from increased air and carbon pollution
- \$820 million a year reduction in New Jersey's GDP
- 6,100 jobs lost

To find out more visit www.njneedsnuclear.com.



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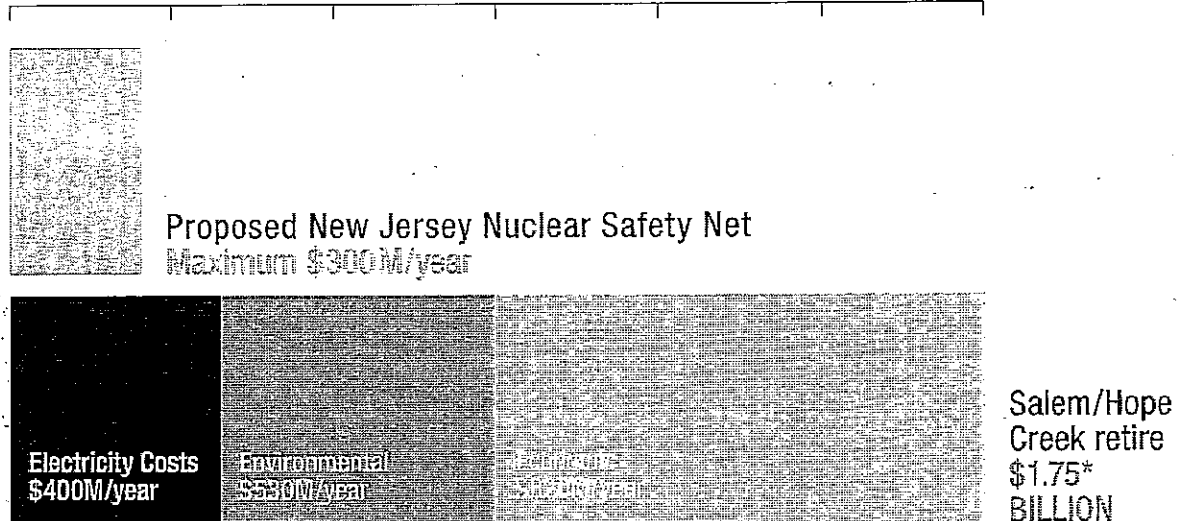
Fact Sheet

Nuclear Safety Net Legislation

The Nuclear Safety Net Bill No. S-3560 provides a safety net to allow New Jersey to:

1. maintain a diverse fuel supply that supports the resiliency of the state's energy supply
2. maintain more than 90 percent of the state's air pollution-free electricity, and
3. maintain a strong contributor to the state's economy

APPROXIMATELY 6 TO 1: the cost of losing nuclear compared to the cost of preserving it



*From IHS Markit, Nov 2017

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- \$400 million a year in higher electricity costs
- \$530 million a year in public health and environmental costs from increased air and carbon pollution
- \$820 million a year reduction in New Jersey's GDP
- 6,100 jobs lost



COST

Total: \$300 million. For the most recent energy year, which ended in May, the cost would have been \$298.3 million, while the average for the previous six years would have been \$307 million. Consumption has declined in recent years due to increased efficiency and other factors.

Energy years 2011-2016, average N.J. retail sales are 76.776 TWh:
 $\$0.004 \text{ per kWh} \times 76.8 \text{ TWh} = \$307.1 \text{ million collected}$

During energy year 2017 (Jun16-May17) – Total N.J. retail sales were 74.577 TWh:
 $\$0.004 \text{ per kWh} \times 74.577 \text{ TWh} = \$298.3 \text{ million collected}$

New Jersey families and businesses would pay \$400 million more a year for electricity if the nuclear plants were to close, according to economic analyses by the Brattle Group and IHS Markit.

Per customer: \$2.60 a month or \$31.20 a year, based on the New Jersey Board of Public Utilities' standard that the average customer consumes 650 kWhr/ month and 7,800 kWhr/ year ($650 \times \$0.004 = \2.60).

Significantly less than the customer impacts identified by the Brattle Group and IHS Markit. Those two economic analyses concluded that, if the plants closed, the resulting increase in electricity costs would be \$3.64 a month or \$43.68 a year per customer, before even considering the additional costs of premature retirement.

CONSUMER PROTECTIONS

No payments will be made until the company files a certification that it will close the plants within three years and provides financial information demonstrating financial need to the BPU.

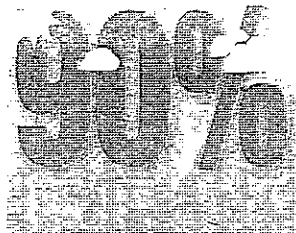
- No payments would be made until BPU verifies there is a financial need; BPU will re-evaluate need every three years. In New York, nuclear plants were selected for a period of 12 years; in Illinois, plants were selected for 10 years.
- The cost of New Jersey's Nuclear Safety Net, approximately \$10/MWh, would be less than the cost of programs in Illinois (\$16.50/MWh) and in New York (\$17.50/MWh).
- The amount paid to qualifying plants may be reduced at the BPU's discretion if it determines a reduced payment will prevent the premature retirement of a plant.
- The amount paid to qualifying plants will be reduced by any payments received through a federal, state, or multi-state program (PJM, FERC, RGGI, etc.).
- Participating plants are required to remain in operation, and any plant that closes while receiving support must reimburse the state in full for the payments received during that period.

Nuclear powers New Jersey,
driving its economy while protecting the air.



Nuclear energy helps ensure the reliability of the grid

- Nuclear power produces nearly half of New Jersey's electricity.
- If the plants close, New Jersey will become almost totally reliant on one fuel source – like putting all of our eggs in one basket.
- If the plants close, New Jersey will be at great risk of power disruptions from low-probability, high-impact events.



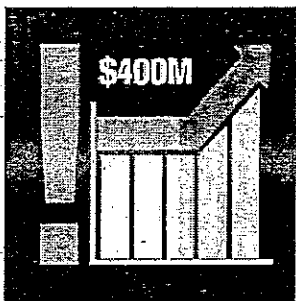
Nuclear is critical to New Jersey's air quality

- Nuclear currently provides more than 90 percent of New Jersey's clean energy.
- Closing the nuclear plants will be a huge step backward – increasing climate change gases and other pollutants by 14 million tons a year.
- Cost to the state of increased pollutants estimated to be more than \$700 million a year, according to a Brattle Group study.



Nuclear power is vital to New Jersey's economy

- More than 6,000 jobs depend on the two South Jersey nuclear plants.
- Closing the plants would reduce New Jersey's GDP by more than \$800 million.
- State tax revenues would decline by \$37 million if the plants closed.



Nuclear is cheaper to preserve than to replace

- Studies (by Brattle Group and IHS Markit) estimate the cost to consumers of closing the plants would exceed \$400 million a year.
- It will cost 40 percent more to replace the plants than to preserve them.

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STEFANIE A. BRAND
Director

**Remarks of Stefanie A. Brand, Director, Division of Rate Counsel, Regarding
S3560/A5330 (Establishes Nuclear Diversity Certificate Program) Presented at the
Joint Meeting of the Senate Environment and Energy Committee and the
Assembly Telecommunications and Utilities Committee
December 20, 2017**

Good morning. My name is Stefanie Brand, and I am the Director of the Division of Rate Counsel. I would like to thank Chairman Smith, Chairman DeAngelo and members of the committees for the opportunity to testify today on S3560/A5330.

The Division of Rate Counsel represents and protects the interest of all utility consumers – residential customers, small business customers, small and large industrial customers, schools, libraries and other institutions in our communities. Rate Counsel is a party in cases where New Jersey utilities seek changes in their rates and/or services. Rate Counsel also gives consumers a voice in setting energy, water and telecommunications policy that will affect the rendering of utility services well into the future.

As the statutorily mandated advocate for ratepayers who have a direct interest in the continued provision of electricity at reasonable rates, Rate Counsel certainly has no interest in seeing nuclear power plants shuttered at this time or at any time prior to when we no longer need the electricity they generate. However, there is no reason to believe that the federal, state and regional entities that ensure our continued reliability and administer our deregulated wholesale energy and capacity markets, are unable to

oversee our grid and administer those markets to protect these plants from shutting down while they are still needed. Nor is there any reason to reverse the decades-long deregulation of generation throughout the state to suddenly provide the benefits, but not the burdens, of re-regulation to one preferred fuel source.

There has been no demonstration that PSEG's nuclear plants are in financial difficulty other than bald assertions and ultimatums issued by the Company. This Legislature has a duty to its constituents to test those assertions and not simply succumb to the Company's threats. While there are some nuclear power plants in this country that are at risk of shutting down, most of them are in areas where the energy and capacity prices paid are lower than New Jersey's or where other factors may increase their operating costs. But not all nuclear power plants are in trouble. In fact, in Connecticut, where the bill passed by the Legislature required an independent review of the nuclear plant's finances prior to the institution of any subsidy program, that independent consultant found that those plants continue to be profitable. If we had an independent review of NJ's plants before rushing into a subsidy that will cost ratepayers over \$300 million per year, I believe we would see the same conclusion. Indeed, the PJM Independent Market Monitor testified here a few weeks ago that these plants are making money. Even the Company admits that the plants are profitable now and will be for the next several years. Yet the subsidies set forth in this bill would take effect in less than a year.

I cannot urge this Legislature more strongly not to rush into this, to understand fully what you are voting on before you approve it, and to consider not only the impact

on PSEG, but the impact on every business and family in this state. You have heard and will continue to hear me say that ratepayers do not have bottomless pockets. If you do this, we will not be able to afford the renewable energy and energy efficiency programs we want to do; we will not be able to replace the aging infrastructure we need to replace and we will lose jobs, as businesses close and companies move out of state to avoid some of the highest electricity rates in the country. If even the CEO of PSEG acknowledges that these plants will continue to be profitable for a few years, the Legislature has an obligation to take the time to consider this issue fully and determine if any solutions are needed or warranted.

Even if you believe that some form of program should go forward, the scheme set forth in this bill is unworkable and so heavily weighted in favor of the nuclear plant owners, that it is outrageous. Very few of the key terms are defined, the timeframes are insufficient to ensure adequate process and review, and some provisions are internally inconsistent. While the bill contains a number of provisions that appear to be aimed at protecting consumers, they are written in such a way that they don't. Consumers are not protected at all, while the utilities and the nuclear plant owners are insulated from any risk whatsoever.

Here are a few examples:

- Despite the language in Section 3a of the bill, it does not in fact require PSEG to open its books so that a probing independent analysis can be conducted to

ensure that these plants are truly at risk of losing money. The list of items that PSEG would be required to submit and "certify" do not include all of the items we will need to review and analyze its assertion that it is "cash negative." There is no time for follow up that would allow our office or the BPU to obtain further information necessary to make the required findings, and no administrative process is provided if the findings or data are contested. The information is all forward-looking, based on estimates that can easily be wrong or gamed. All that is required essentially is a certification from the Company providing the information they choose to give to us and a declaration that if we don't give them what they want, they will close.

- The sections providing for blanket confidentiality for all of the information submitted is highly unusual. While we certainly see confidential information in BPU cases, and take that information subject to a non-disclosure agreement, the normal BPU procedures place the burden on the Company to assert, and support if challenged, the confidentiality of specific information. They do not simply provide blanket confidentiality for all information submitted. This further undermines the independence and integrity of the process.
- The confidentiality provisions will also make the public hearings meaningless. The bill does require that the BPU hold public hearings when establishing the "Nuclear Diversity Certificate" (NDC) program, when determining the eligible plants, and when approving the tariffs to authorize the collection of the rate by

the utilities. However, if all the information submitted by the nuclear plant owner to justify its eligibility is confidential, what will the public be able to discuss at those hearings?

- The eligibility criteria also put the thumb on the scale of the nuclear plant owner. Pursuant to Section 3e, the plant must show that "the nuclear power plant's fuel diversity and air quality attributes are at risk of loss because the nuclear power plant is cash negative on an annual basis, or alternatively is not covering its costs including its cost of capital on an annual basis." What are "fuel diversity and air quality attributes?" What "risk of loss" is acceptable? These terms, like many other important terms in the statute, are not defined. However, we do know that because these generating plants are deregulated, there is no set cost of capital that they are entitled to or authorized to receive. That is why when they were making windfall profits a few years ago, ratepayers couldn't get back the approximately \$3 billion in stranded costs we were paying. So what is the cost of capital that forms the basis for eligibility? Is it the cost of capital that Company would like to earn? The amount it will accept in order to withdraw its ultimatum to close? If so, that is not an economically sound basis for subsidizing these plants and undermining the energy markets, and it is not fair to consumers.
- Just as arbitrary is the rate set in the statute of .4 cents per kilowatt hour for the subsidy itself. Where does that come from? What is the basis for it? All we do know is that the rate is included in this bill which means it was established before

any review of the plants' financial information. There are well-established constitutionally-based principles that rates must be just and reasonable. There is no way to know how this rate was derived, whether it has any correlation to any alleged revenue shortfalls being experienced by PSEG or whether it is just and reasonable.

- And don't be fooled into thinking that the BPU can lower that rate if it proves to be too much. First, for the first four year subsidy period, the timelines in the statute provide that tariffs would have to be filed and BPU would have to have a proceeding to lower the rate before the agency even completes the proceeding to establish the program. Given the complicated tasks that BPU will be required to complete in very short timeframes in the midst of a transition, it is not likely the agency will be able – consistent with due process and the evidentiary rules that still apply- to have simultaneous proceedings to lower the rate, review the tariffs, develop the program, and review eligibility in the timeframes allowed. Second, if the BPU does lower the rate, pursuant to Section 3k, PSEG can simply back out of the program. While there is no relief valve for ratepayers if prices and revenues go up during the four year and subsequent three year periods, there are many unilateral off ramps for the Company. Not only may the Company drop out if the BPU lowers the rate, it can drop out if the Legislature passes any new tax, assessment or fee on generators, or if a state or federal law reduces the

value of an NDC, for instance by imposing wholesale market rules that will minimize the market distortion from the NDC.

- And the fact that the bill makes this charge *irrevocable* cannot be ignored. Once the initial four year period or subsequent three year periods begin, ratepayers are on the hook for the entire period. If prices go up, which is likely to happen for a number of reasons, only some of which relate to the financial stress on nuclear and coal plants, PSEG gets to keep the additional revenues as well as the NDC supplemental payments for that entire period. There is also no end date to this statute and no definition of when the closure of a nuclear plant will no longer be considered "premature."
- The provision providing for an offset if PJM, FERC or other entities act to address the financial condition of coal and/or nuclear plants is also of little value for ratepayers. It does not change a nuclear plant's eligibility for subsidies unless, according to the nuclear plant itself, the program "*eliminates* the need for the nuclear power plant to retire prematurely." (Section 3e(5)). The bill does provide for the BPU to determine each year the "dollar amount" received from such programs and deduct it from the overall subsidy, but establishing that dollar amount will be virtually impossible, given that the market prices are set by a variety of factors making it difficult to pull out that one strand to determine its impact on the overall price. If New Jersey re-enters RGGI, it is essential that any revenues generated from the price on carbon that other plants will pay go to

clean energy and energy efficiency programs. However, while the RGGI payments paid by its competitors will help PSEG's plants compete, the RGGI revenues will not be deducted from this program, as only amounts "received" by the nuclear plants are deducted.

- It will also be impossible to ensure that New Jersey ratepayers are not subsidizing ratepayers in other states. Not all of the electricity generated by these plants goes to New Jersey. In fact, much of it goes to Delaware, Maryland and Pennsylvania. With additional transmission being built from these nuclear plants, the amount going out of state, according to the PJM cost allocation formula, may very well increase. Many New Jersey businesses compete with businesses in nearby Delaware, Maryland and Pennsylvania. With this bill, you will be giving those out of state competitors a leg up.
- Furthermore, assuming they can show that they are replacing upwind gas or coal plants, or otherwise contribute to air quality and fuel diversity, out of state nuclear plants such as Three Mile Island may also be eligible for these subsidies. Given that the bill allows for subsidies until the megawatt-hours reach 40% of New Jersey's E.Y. 2017 load, we will almost certainly be subsidizing out of state plants, as the three eligible in-state nuclear plants provide New Jersey with less than 40% (about 33%) of our electricity.

- The bill also makes it appear that if the state's Basic Generation Service prices go up more than .75 percent over a two year period, then the BPU can lower the subsidy. But again this provision is illusory, because the BPU would only have a brief window every three years to lower the rate and, as noted earlier, if the BPU does lower the rate, the Company can walk away.
- Finally, many of the "findings," in the bill do not comport with real facts. For example, New Jersey has not experienced supply constraints for natural gas and the PJM Capacity Performance rules have been put in place to require sufficient firm capacity to ensure fuel security. The NERC study cited in the findings has been superseded by this year's report which specifically cites programs like that as helping ensure reliability. All objective studies from DOE, NERC, PJM etc. have concluded that our system is reliable and that there is no imminent crisis from a lack of fuel diversity.

In sum, this is a flagrant transfer of wealth from New Jersey's ratepayers to PSEG's shareholders without an independent or significant review of whether these subsidies are needed, whether the amount of the subsidy correlates to any shortfall in compensation from the federal markets, whether the rate is just and reasonable, or whether this will ultimately benefit New Jersey's economy. It's a "heads I win, tails you lose" situation for PSEG. It puts all the power and benefits on PSEG's side of the ledger, allowing it to determine what it is entitled to earn, whether other programs provide enough assistance, and even its own eligibility. The tasks being assigned to

BPU are impractical, impossible and cannot be adequately performed in the timeframes allowed. PSEG can back out if any term doesn't go in its favor, but ratepayers are on the hook for an irrevocable charge even if PSEG starts earning more. The public comment process is a sham and normal administrative procedures are cast aside as if they were of no importance to protecting the due process rights of ratepayers.

If there really is a problem to be solved here there is time to solve it. There should be an orderly, objective process to assess the problem, figure out what is needed to solve it, and come up with a fair way to balance the competing interests of both the Company and ratepayers. This is going to cost over \$300 million per year. That is \$300 million each and every year that we can't spend on other things, like the transition to a new energy economy. This rushed process and sloppy Legislative language is going to come back to haunt us.

Thank you for the opportunity to testify today, Rate Counsel looks forward to continued dialogue to achieving goals that meet the state's energy needs and protect utility customers. I am available to answer any questions you may have.



JAMES J. FLORIO

**Testimony to the Joint Committees
Assembly Telecommunications and Utilities Committee
Senate Environment and Energy Committee
Trenton, New Jersey
December 20, 2017**

There are a lot of questions that one asks when deciding whether to support a bill. Does the bill address a real and important problem? Does it accomplish what it sets out to do? What are the costs? Are there strong protections for the citizens, especially protecting them if the situation changes?

When one addresses these questions to the bill before us, it performs well.

Is the issue important and will this bill accomplish what it sets out to do?

Yes. This bill will preserve our nuclear benefits for NJ customers. Close to my heart is the benefit it preserves for the environment.

This bill will prevent taking an enormous step backward in our efforts to combat climate change by dramatically increasing air emissions, as they have wherever nuclear plants have closed.

It will prevent adding nearly 14 million tons of CO2 emissions per year -- the equivalent of adding about 3 million cars to New Jersey's roads.

It will also prevent the release of nitrogen oxides, sulfur oxides, particulates and mercury into the air, which negatively impact public health such as asthma and other serious health problems.

If we allow our current nuclear plants to close, it will wipe out all of the environmental benefits from all of the solar and wind energy that New Jersey has invested in to date -- and then some. IHS an independent consultant group did an independent analysis and estimates the value of air pollution avoided by New Jersey's South Jersey nuclear plants at more than \$530 million.

But it is not just about the environment.

This bill will prevent the loss of nearly 6,000 jobs and more than \$820 million in economic activity in the state.

And they estimated the cost to consumers of replacing the energy if the plants closed at more than \$400 million.

So, the benefits of preserving the plants -- if we add the environmental benefits, the economic benefits and the avoided increased cost of the lost generation -- is \$1.7 billion.

So what are the costs associated with the bill?

Under this legislation, consumers cost increases are significantly less – estimated at around \$300 million per year. A quick cost benefit analysis shows the benefits are 6 times the cost.

And the cost per average customer is less than 10 cents a day – I believe most NJ residents would pay that for the huge environmental benefits and the preservation of close to 6,000 jobs – especially if they understand their bill will go up even more if the plants close.

Are consumers protected?

I want to commend the legislators who guided the crafting of this bill. It includes much stronger consumer protections than similar bills passed in New York and Illinois. These protections include:

- that the owners of a plant must open their books to New Jersey regulators to demonstrate a financial need,
- that if the need goes away, the payments also go away with re-evaluation of need every three years,
- that payments to a plant be reduced if a nuclear plant also begins to receive support through a federal or multi-state program, and
- that any plant receiving payments be required to stay open for as long as the support is in place.

It is also important to note that the cost to preserve the plants here in New Jersey is much less on a megawatt basis to the support given nuclear plants in Illinois and New York.

Because of the tremendous benefits of the bill and the strong consumer protections, I urge you all to support the passage of this bill.

Thank you.

A handwritten signature in cursive script, reading "J. J. Florio". The signature is written in black ink and is positioned above the printed name.

James J. Florio

Dr. Edward H. Salmon
Chairman, New Jersey Energy Coalition
Senate Environment and Energy Committee and
Assembly Telecommunications and Utilities Committee
December 20, 2017

Thank you. I am Dr. Edward H. Salmon, chairman of the New Jersey Energy Coalition.

I have had the honor and privilege to serve for 26 years in public office as a Mayor, Freeholder-Director, State Legislator, and as a member of the Governor's Cabinet as President of the Board of Public Utilities. For the past 27 years I have been working closely with the National Association of Regulatory Utility Commissioners (NARUC) and currently serving as President of NARUC Commissioner Emeritus.

In August 2007, we established the New Jersey Energy Coalition, an organization founded to raise public awareness of the value of clean, affordable and reliable energy for our state.

I'm here today to talk about preserving New Jersey's nuclear power plants, which are facing an uncertain future. I am concerned, as are many of us here today, that economic conditions could force PSEG's Salem and Hope Creek plants into early retirement unless action is taken.

New Jersey's nuclear plants are a critical source of clean, reliable baseload energy. They provide almost half of the electricity generated in our state. New Jersey's nuclear reactors work around-the-clock, even when faced with the most severe weather conditions – whether hurricane, superstorm or polar vortex.

One of nuclear's most important contributions is the need for fuel diversity. Let me explain what I mean by that: In New Jersey, we generate power using a number of fuels – nuclear and natural gas are the largest by far, combining to make the largest contribution to Grid Security. However, we also buy electricity from coal plants and solar farms, and even small amounts of hydroelectric power and methane collected from landfills. This diversity of different fuels helps keep New Jersey's energy supply reliable, resilient and affordable. It also protects ratepayers from sudden shifts in the price of any one fuel.

Now take nuclear out of the mix: New Jersey would be dependent on natural gas for more than 90 percent of its electricity. That's extremely risky. To understand why, let's go back to the polar vortex in January 2014. Faced with continual sub-freezing temperatures, PSE&G and other utilities were required to divert, or curtail, critically needed gas away from power plants due to firm pipeline capacity constraints to make sure enough remained available to heat people's homes.

Thanks to New Jersey's nuclear plants, which weren't affected by severe temperatures, the state's electric supply was unaffected. But what if nuclear went away?

A new study by a highly respected Economic Consulting Firm, I-H-S did the math and found that, if our nuclear plants had shut down before the polar vortex, New Jersey consumers would have paid anywhere between \$70 million and \$230 million – for just seven hours of replacement power. Had curtailments lasted 24 hours, the extra cost would have been astronomical: as much as \$790 million.

This is why our parents warned us not to put all our eggs in one basket.

There are also other reasons to preserve New Jersey's nuclear plants.

Salem and Hope Creek employ 1,600 people – not including contractors and local businesses that depend on the plants for their business. Allowing them to close would put thousands of people out of work.

The economic impact wouldn't stop there. That same I-H-S study found that closing Salem and Hope Creek would add \$400 million to New Jersey energy bills every year.

Just as important, nuclear does not produce carbon or other air pollutants. Nuclear accounts for 90% of the state's carbon free power. Without nuclear we will not meet our environmental goals for New Jersey.

The facts speak for themselves. Economically, environmentally, and for a reliable energy supply, New Jersey cannot afford to lose its nuclear plants.

Thank you for your time.



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December 18, 2017

Honorable Bob Smith
Chairman, Committee on Environment and Energy
New Jersey State Senate
Trenton, New Jersey (sent via e-mail)

Subject: *S. 3560's Many Pitfalls for Consumers and Competition*

Dear Senator Smith:

This letter follows up on the correspondence sent to you on December 5, 2017, which was prompted by the hearing where EPSA and many others were not allowed to testify. In that letter, EPSA outlined in detail the many concerns we had with the sketchy "nuclear power plant profit safety net" that PSEG presented at the December 4 hearing.

EPSA has now had a brief opportunity to review the legislative language you introduced as S. 3560 on December 14, 2017, to create a new and unprecedented way to compensate nuclear power plants, termed in the bill as a "Nuclear Diversity Certificate" program ("NDC"). Even after only the preliminary analysis that the past few days has allowed, it is abundantly clear that EPSA's concerns and those of many other opponents have been confirmed, and then some. Please allow us to elaborate below.

S. 3560 Starts with False Premises that Plants Will Close and Rates Will Rise

The stated purpose of S. 3560 is to avoid "premature" retirement of New Jersey's nuclear plants. Putting aside the validity of the "premature" concept, given that under federal and state law all power plants compete regardless of fuel and face similar challenges, **there is no factual basis to conclude that New Jersey's nuclear plants are in imminent danger.** PSEG has said as much: the plants are profitable for years, they have capacity obligations to PJM, and there are several state, regional and federal initiatives underway that would make them even more profitable. **There is simply no need to rush to make hasty, ill-informed and ill-advised decisions in the remaining days of this session.**

Similarly, despite scare tactics and use of paid-for, self-serving "reports" with blatantly unrealistic assumptions, there is no basis to the wild claims that electric rates will skyrocket in the absence of massive consumer subsidies. We would be glad to walk you and others through the technical deficiencies in the Brattle and IHS Markit work done for the nuclear industry. Suffice it to say that were these claims true, consumer advocates would not be so strongly opposed to S. 3560.

S. 3560 Lets Nuclear Plants Cherry Pick Between Cost-Based and Market Rates

There are two separate and distinct ways to compensate owners of electricity generation: ***EITHER cost-based rates*** that are closely bounded by detailed rules, regulations and procedures ***OR market-based rates*** that rely on competition and market rules to discipline what suppliers can charge for power.

S. 3560 allows PSEG and Exelon to have the best of both worlds at the expense of consumers and their competitors. The bill gives them guaranteed cost recovery, including capital costs and profits, but without the independent NJBPU supervision and profit limitations that accompany traditional cost-based regulation, including weighing alternatives. At the same time, S. 3560 would allow PSEG and Exelon to keep all the upside if market-based rates rise in the future, but without them assuming the higher risks normally part of the bargain with market-based rates (including the risk that costs including capital costs exceed revenues). This would be exacerbated by the anti-competitive effects of letting them bid in wholesale energy and capacity markets with the "head start" of hundreds of millions of dollars in consumer-financed subsidies *each year*. This will let them distort wholesale market outcomes and thus lessen the very competition that is essential to keeping their market-based rates in check.

S. 3560's practical effect is to repeal New Jersey's restructuring law that was designed to shift risks and costs from consumers to investors, but only for PSEG and Exelon. However, instead of returning to the pre-restructuring law's traditional approach to cost-based regulation consistent with sound utility rate-making principles, the mechanisms in S. 3560 by-pass those protections. We would be pleased to elaborate as to why this is the case.

S. 3560 Makes It Too Easy for Nuclear Plants to Qualify for Consumer Subsidies

Section 3 is replete with drafting gaps and gimmicks. For starters, **there is no basis as to why the entire structure is forward-looking as opposed to backward looking.** Mere forward-looking corporate projections, especially over multiple years, are ripe for gamesmanship and manipulation or simply making mistakes, especially when the information from a nuclear plant's owners appears to be self-certified and would be treated by the NJBPU as confidential.

Forward-looking approaches require making assumptions about a dynamic, evolving subject (electricity) with a poor track record of even seasoned experts being able to accurately predict all the variables that will impact the financials of a given set of power plants. By contrast, the owners of these plants are profitable, multi-billion dollar companies with strong balance sheets and cash flows, paying hefty dividends to their shareholders. The nuclear plants at issue are but a part of their fleets. Any assistance should occur after the close of each year when results are known to the penny, as opposed to speculating about what costs and revenues may or may not be over a multi-year period such as three years here.

Below are just some of the ways in which Section 3 as drafted makes it too easy to qualify for unprecedented and unjustified access to subsidies:

- **Everything is confidential** as submitted by those who stand to gain hundreds of millions of dollars per year, without any explicit requirement for independent audits, public comment or analysis by the NJBPU;
- **"Risk of loss" is not defined in the legislation**, and the "loss" that would trigger the NDC payments is **not** the risk of the plants closing as properly defined, but the broader and more subjective risk of loss of "fuel diversity" (also not defined) and air quality attributes, but only from these plants and without regard to whether the NDC payments would be the least cost means to maintain those benefits for New Jersey;
- **The look-ahead in Section 3(a) alternates between a three-year forward period and references to financial measures on an *annual* basis** during that three-year period; in other words, the legislative language is subject to the interpretation that if a plant has a financial shortfall in only one of the forward three years under review, the plant would receive the NDC payments for the full three-year period;
- **The section has an overly loose and ill-defined test – or really a series of multiple pathways – for PSEG and Exelon to qualify for NDC payments from captive consumers.** Simply stated, Section 3(a) would allow them to load up the projected expenses to justify subsidies well beyond what is considered prudent based on traditional utility and wholesale market practices and principles. As drafted, the allowed costs are not just operation and maintenance including fuel expenses, but "non-fuel capital expenses" (potentially including those already recovered), a new undefined category termed "cost of operational and market risks that would be avoided by ceasing operations" and "any other information, financial or otherwise." In other words, non-financial information and unspecified "other" information could be injected to justify why the plants *might* retire even if the numbers themselves do not.
- The tests are that the power plant is cash negative on an annual basis "or alternatively is not covering its costs including its cost of capital on an annual basis." **This is a telling example of mixing and matching between cost-based and market-based rates.** Power plants in competitive wholesale markets and restructured state power systems such as New Jersey are not supposed to be guaranteed their costs of capital, especially when their competitors have no such guarantees. Furthermore, the bill has no limits on what that amount could be, and whether it includes sunk costs or previously recovered stranded costs. The bill does not expressly require that the NJBPU determine that the costs claimed were prudently incurred or for used and useful facilities.

S. 3560 Over Compensates Nuclear Plants to Inflate their Owners' Profits

Even if one accepts that New Jersey's nuclear plants are at risk of closing soon (and they are not), and even if one tolerates the toggling between cost-based and market-based rates (which you should not), **the most glaring flaw is the disconnect between how much a nuclear plant "needs" to stay open and the much larger amount plants would receive as NDC payments.** In other words, even if the triggers to qualify were fixed, the subsidy paid is not limited or tailored to the projected gap between costs and revenues. **This is because once a plant meets one of the loose tests to qualify for an NDC, the amount of the payment is not limited to the amount of the gap between costs and revenues used to qualify for an NDC payment in the first place (see below).**

Instead of leaving it to the NJBPU to determine an amount using traditional cost-of-service principles, S. 3560 is **very generous to plant owners by paying them based on the rigid formula spelled out in section 3(g), (h) and (i).** As best we can tell, the formula collects from captive consumers \$4 per megawatt-hour (MWh) applied to all nuclear and non-nuclear generation consumed. It then pays eligible nuclear plants **(regardless of the amount of their projected shortfall)** the equivalent of \$10 per MWh as a bonus (at a time when market prices are \$30 per MWh, for a one-third premium over market prices). This comes to around \$300 million annually (roughly \$200 million to PSEG and \$100 million to Exelon) **even if** the projected or actual difference between a plant's generous definition of costs and its revenues is far less than the large fixed NDC payments. While captive customers share in the "losses", they get none of the upside in years when the plants are profitable above the new "safety net" NDC levels. This could be addressed by netting profits and losses over multiple years. The bill does not adequately protect against "double dipping" (under section 3(e)(5) federal and other non-NDC payments for the same "attributes" *do not* reduce NDC payments dollar for dollar in all instances as should be required).

There are many other questions, including whether out of state plants would be eligible, whether New Jersey consumers would subsidize plants but the power goes out of state, and whether FERC and PJM will act to protect wholesale markets in a manner that could effectively disallow nuclear plants armed with NDC subsidies from counting toward PJM capacity requirements and being dispatched to meet electricity demand. **Thus, it is a mistake to rush to judgment but helps explain why those who stand to receive very sizeable NDC payments are pushing to rush to judgment anyway.**

Sincerely,



John E. Shelk

President & CEO, Electric Power Supply Association (EPSA) (Email: jshelk@epsa.org)

CC: Senate and Assembly Committee Members

Salem and Hope Creek Nuclear Power Plants' Contribution to the New Jersey Economy

Executive Summary

PREPARED BY

Mark Berkman, Ph.D.

Dean Murphy, Ph.D.

November 2017

THE **Brattle** GROUP

In recent years, wholesale electricity prices have declined significantly, due in large part to the shale gas revolution. Natural gas is the price-setting fuel in many U.S. electricity markets, and the dramatic reduction in its price has brought down electricity prices as well. Negligible demand growth and substantial amounts of new policy-driven renewable generation have also contributed. While lower power prices are generally a positive development for consumers, persistently low prices can threaten the economic viability of existing generators, whose premature retirement could offset much of the price reductions that have occurred. Nuclear generators in particular, because of their high fixed costs and effectively zero variable costs, tend to keep market prices low when they are operating, but are themselves financially vulnerable to sustained low power prices. Indeed, in the past few years, several nuclear plants have been retired prematurely for purely economic reasons, and a number of others are threatened. Because of the economic and environmental consequences that accompany the loss of nuclear generation, some states have implemented and others are considering policy mechanisms that would support existing nuclear power plants and prevent their premature retirement.

In this context, The Brattle Group has evaluated the contribution that the Salem and Hope Creek nuclear power plants in New Jersey make to the state's economy. We considered how these plants affect electricity markets and prices as well as in-state productive activity, and studied the resulting ramifications of these factors throughout the New Jersey economy. We found that these plants keep electricity prices lower than they would otherwise be, and also keep productive economic activity in-state. As a result, New Jersey's GDP will be higher with these plants operating than it would be without them. These plants also maintain jobs within New Jersey; not only the direct employees of the plants and the indirect jobs at suppliers and contractors that support plant operations, but also additional jobs throughout the economy that result from the overall economic boost associated with lower electricity prices and more in-state production. In addition, the continued operation of these nuclear plants holds down emissions of CO₂ and other air pollutants both within and outside New Jersey. In their absence, correspondingly more power would be produced by fossil-fueled power plants, causing a substantial increase in emissions.

In this analysis, we have not considered the structure or cost of any potential policy mechanism that may be necessary to ensure the continued operation of these nuclear plants. As a result, this analysis effectively calculates the gross economic benefits of preserving these plants, not the net benefit of a proposed policy that would do so.¹

Our analysis has determined that over the next ten years (2018–2027), the Salem and Hope Creek plants operating in New Jersey:

- **Contribute approximately \$809 million annually to state gross domestic product (GDP).**
- **Account for 5,800 in-state jobs (direct and secondary).**
- **Help keep electricity prices low.** New Jersey consumers would pay \$400 million more for electricity annually, about \$3.3 billion more in present value over the next ten years, without these two plants.
- **Are responsible for \$37 million in state tax revenues annually.**
- **Avoid 13.8 million metric tons of CO₂ emissions annually over the next ten years, valued at \$585 million per year.**
- **Avoid significant amounts of other air pollutants annually, valued at \$148 million per year over the next ten years.**

These measures reflect the significance of these two nuclear power plants for the New Jersey economy, and are determined by comparing the performance of New Jersey's economy with

¹ A full analysis of any particular policy or proposal that would support these nuclear plants would need to incorporate the costs of that support, as well as any other aspects of the policy proposal. Also, while reductions in electricity costs do benefit consumers, the offsetting impact on producer revenues must also be considered to determine whether they improve total social welfare. Our analysis of economic impacts—GDP, jobs, and tax revenues—does account for the producer revenue impacts.

these plants operating to its performance without them. This approach nets out the economic contribution of the alternative generation that would substitute for these two plants—both the greater utilization of existing plants and the construction of new plants, as necessary—to determine the plants' incremental economic contribution. Absent the energy from these nuclear power plants, New Jersey and the broader region would rely more heavily on natural gas and coal-fired generating plants, many of which are outside New Jersey, leading to considerably greater reliance overall on out-of-state generation, and transforming New Jersey from being a modest importer, producing almost as much electricity as it consumes, to being a substantial net importer, procuring over a third of its electricity requirements from out of state. The increased reliance on fossil generation that would occur in the absence of these nuclear plants would cause higher emissions of carbon and other air pollutants, including in some current non-attainment areas of New Jersey. It would also raise power prices; without these two nuclear power plants, wholesale electricity prices in New Jersey and throughout the broader region would be higher. Higher prices would flow through to residential, commercial and industrial consumers as higher electricity bills. It is this effect on electricity prices that accounts for about half of the overall incremental economic impact; the reduction of in-state generation and associated economic activity is also important. Note that these measures reflect only the impacts within New Jersey, although the absence of these two New Jersey nuclear power plants will have significant additional negative consequences in the form of higher power prices beyond the state's borders.

Emissions of carbon dioxide (CO₂) and "criteria pollutants" identified by the Clean Air Act, such as nitrogen oxides (NO_x) and sulfur dioxide (SO₂), would also be much higher in the absence of the Salem and Hope Creek plants, because the replacement generation would be almost entirely fossil-fired. Compliance with national ambient air quality standards (NAAQS), such as for ozone season nitrogen oxides (NO_x) and small particulate matter (PM_{2.5}), could become more costly for other generators, both in-state and out of state. It would likely be more difficult for New Jersey to achieve targeted CO₂ reductions under any future climate policy. Further, the pollutant impacts are not limited to New Jersey, first because much of the replacement generation would come from outside New Jersey, and second because air pollution impacts can cross state borders—they are often regional in the case of criteria pollutants, and are global in the case of carbon dioxide.

REMARKS OF TANYA BODELL
REGARDING PROPOSED SUPPORT FOR NEW JERSEY NUCLEAR PLANTS
BEFORE THE NEW JERSEY SENATE ENVIRONMENT AND ENERGY AND
THE ASSEMBLY TELECOMMUNICATIONS AND UTILITIES COMMITTEE

Wednesday, December 20, 2017

Meeting – Committee Room 4, 1st Floor, State House Annex, Trenton, NJ

INTRODUCTION AND QUALIFICATIONS

My name is Tanya Bodell. I am the Executive Director of Energyzt Advisors, LLC, an economic and business consulting firm focused on advising market participants, policy makers and investors in the energy industry.

In this role, I manage business operations and provide advisory services to clients on business strategy and investment decisions. I also oversee the development and maintenance of our power market models and the quantitative analyses of industry data that allows our clients to make informed decisions. Our analytical service offerings include energy market assessments, long-term price projections using fundamental analyses, and probability-driven analyses. We also provide financial assessments of energy assets for purposes of valuation, refinancing and restructuring.

I have been a consultant to the energy industry, primarily the power sector, for nearly twenty-five years. Prior to establishing Energyzt in 2012, I was a consultant at FTI Consulting, Charles River Associates and Putnam, Hayes & Bartlett. I have previously serviced as a testifying expert before arbitration panels, in a court of law, before the Federal Energy Regulatory Commission, before the Connecticut Siting Council, before the Massachusetts Public Utility Commission, and before the Little Hoover Commission in California.

PURPOSE OF MY TESTIMONY

I have been engaged by the Electric Power Supply Association (“EPSA”) to opine on two items concerning the Hope Creek Nuclear Generating Station and the Salem Nuclear Power Plant (“the New Jersey Nuclear Plants”):¹

- 1) **Financial Assessment:** Assess the historical and projected financial position of the New Jersey nuclear plants to understand whether they require immediate support; and
- 2) **PSEG’s Benefits Analysis:** Review and comment upon the report issue by the Brattle Group (“Brattle Report”) on the benefits of continued operations of the New Jersey nuclear plants.²

A summary of my conclusions on these two topics follows.

¹ New Jersey’s third nuclear power plant, Oyster Creek, was not included in the analysis as it is scheduled to retire in 2019.

²Mark Berkman, Ph.D. Dean Murphy, Ph.D., “Salem and Hope Creek Nuclear Power Plants’ Contribution to the New Jersey Economy,” December 2017, <http://www.brattle.com/news-and-knowledge/news/brattle-economists-evaluate-impacts-of-the-salem-and-hope-creek-nuclear-power-plants-on-new-jerseys-economy-and-environment>

FINANCIAL ASSESSMENT

The New Jersey nuclear plants have always been profitable and will continue to be so through at least 2021 under current conditions due to lucrative hedges and market prices that more than cover costs and provide a positive return to investors. Prior to the roll-off of those hedges, changes to the market rules, including PJM's efforts to increase scarcity pricing and New Jersey's return to the Regional Greenhouse Gas Initiative (RGGI), will increase the revenue streams to operating New Jersey nuclear units that will more than cover their costs of production. Therefore, any support payments from the state to the owners of the nuclear power plants in New Jersey that have not announced retirement will simply flow to the equity investors who already have achieved significant returns on their investment.

A summary of the financial condition of the New Jersey nuclear plants, by time period, are as follows:

- **1970s – 1990s: Regulated Utilities – Nuclear Assets Generated Over 10% Regulated Returns for Shareholders:** Prior to 2000, Hope Creek and Salem were owned and operated by regulated utilities that received rates that covered costs and ensured a guaranteed return on capital. Regulated return on equity for PSEG during the 1970s through 1990s exceeded 10%. Starting in 1993, PSEG earned an approved 12% return on common equity and 10.08% return on ratebase. For nearly half of the original license life, Hope Creek and Salem earned a regulated return.
- **1990s: Restructuring – Stranded Cost Payout:** As part of New Jersey's electricity market restructuring, the regulated utilities that owned the plants transferred the nuclear power plants into competitive affiliates in 2000 and received billions of dollars in pay-out for stranded costs associated with those plants under the assumption that electricity prices would be lower than what would have been recovered under regulated rates. PSEG alone received \$2.455 billion in stranded costs for its nuclear assets.
- **2000 - Present: Competition – Substantial Profits:** PSEG's purchase of minority shares in 2001 establish a very low market value of only \$32.5 million for Hope Creek and \$65.3 million for the Salem units, partially justified by a few years of negative after-tax cash flows. In 2003, Exelon's purchase of Oyster Creek as part of a 2,500 MW nuclear portfolio implied a much higher value of nearly quadruple the values from 2001, an increase in value that was realized by the subsequent run-up in electrical energy prices.

Following an initial decline in electricity prices post-restructuring, the PJM market experienced a dramatic increase in electrical energy prices associated with a rise in natural gas prices. New Jersey's nuclear units, operating as a merchant inframarginal baseload power plant, benefited from the run-up in electricity prices and earned substantially more than had been projected as part of the stranded cost calculations. After gas prices subsided in 2009, the units continued to be profitable due, in part, to newly established capacity market prices. During this time period through 2014, PSEG received significantly higher revenues than had been projected in the calculation of stranded costs.

Remarks of Tanya Bodell
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- **2012 – 2019: Hedges – Stability and Profitability:** Starting in at least 2012, PSEG and Exelon engaged in a hedging program to ensure stable revenues from their nuclear power plants. Hedges were placed on the plants at levels of \$40 to \$50/MWh. Compared to estimated operating and investment costs totaling around \$30 to \$35/MWh, PSEG and Exelon earned significant returns for shareholders. These hedges continue through 2019, ensuring profitability and a substantial return on investment.
- **2020 and beyond: Market Rule Changes – Higher Revenues:** Although futures prices currently indicate cost coverage through 2021, there are a number of market changes underway that will ensure higher revenues for Hope Creek and Salem over the mid- and long-term. These market changes include:
 - New Jersey participation in RGGI
 - DOE's NOPR to reward "resiliency"
 - PJM Proposal to revise pricing formation rules in energy markets (estimated increase in market costs by \$1.4 billion)
 - Reducing out-of-market payments
 - Changing shortage pricing (to "accurately reflect the value of energy and reserves during reserve shortages")

CONCLUSION: Hope Creek and Salem have been incredibly profitable and continue to be so due to PSEG and Exelon's hedging programs that lock in prices at above \$40/MWh versus lower cost requirements (including a reasonable return on investment) of between \$30 to \$35/MWh. Market changes will only bolster profitability. No legislative action is required at this time to support the New Jersey nuclear units.

PSEG and EXELON BENEFITS ANALYSIS

PSEG and Exelon retained the Brattle Group to perform a benefits analysis of keeping Hope Creek and the Salem units operational. The analysis includes an assessment of economic and environmental benefits to ratepayers due to the ongoing operations of the New Jersey Nuclear Power Plants versus an immediate retirement scenario.

The Brattle Report, as published, is inadequate and incomplete. It should not be relied upon to make any decision regarding support for the New Jersey Nuclear Power Plants for the following reasons:

- **Inadequate Backup:** The Brattle Report is a high-level summary. It does not include the detailed backup or description of assumptions required to reproduce the results. Inappropriate or unrealistic assumptions can result in erroneous results. Without any basis for ensuring that the results can be tested, the conclusions should not be relied upon.
- **Incomplete Analysis:** The study does not account for negative economic impacts of potential out-of-market support, including higher energy costs in the event subsidies are not required to keep the plants operational, and the risk differential between uncertain benefits versus certain costs.

- **Deficient Reporting of Results:** The Brattle Report provides a limited set of high level results without reporting key information that could be used to understand the broader implications of the analysis. For example, the report only provides the change in total ratepayer costs.
 - **Failure to Indicate Source of Ratepayer Cost Reductions:** The report does not indicate the relative contribution of energy price reductions versus capacity price reductions that can be used to assess the robustness of the result. It is important to note that Brattle recognizes the more spurious nature of the capacity market results, yet it accounts for over half of the total electricity price effect in PJM-East. Brattle itself notes the uncertainty associated with most of its calculated price reductions:

“Capacity price effects can be difficult to ascertain with confidence, because the market response can be hard to predict (e.g., the extent to which market forces will offset a loss of one source of capacity by retaining others or adding new capacity). Our analysis here finds that the market response is significant and the loss of nuclear capacity would be largely offset; this mitigates the capacity price response, yielding a conservatively small overall price effect.”
 - **Failure to Indicate Prices Underlying Ratepayer Cost Reductions:** The report does not provide the energy and capacity price projections with and without the New Jersey Nuclear Units. This is an important piece of information as it would indicate whether or not the units even need the support to cover costs. As indicated above, the Energyzt analysis shows that both Hope Creek and the Salem Units are projected to be profitable through at least 2021, the year for which futures energy prices and capacity market prices are available. Beyond 2021, the market model on which Brattle relies most likely balances the market to a long-run marginal cost of new entry, which would be significantly higher than the costs of operating the nuclear plants. If the Brattle analysis shows total compensation above \$35 to \$40/MWh, with the plants operating, there is no need for out-of-market support.
- **Flawed Premise:** The Brattle analysis of ratepayer benefits is based on a flawed premise. The analysis assumes that all of the units in both of the plants retire in 2018. This is an unrealistic scenario for the following reasons:
 - The plants will be extremely profitable through 2019 due to existing hedges.
 - After the hedges roll off in 2019, futures energy prices and forward capacity prices are more than enough to cover costs.
 - Anticipated revenues would be even higher if the plants participate in the New Jersey Basic Generation Service auctions.
 - The plants are committed through their capacity supply obligations to operate through mid-2021; to retire before that would be very costly.

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- Both Hope Creek and Salem are committed to operate through mid-2021, if not later
- Both Hope Creek and Salem have been extremely profitable and are making significant profits through at least 2019 due to lucrative hedges, and are projected to be profitable until at least 2021
- There is not a valid analysis of potential ratepayer benefits that would justify such support – the Brattle Report performed on behalf of PSEG is seriously flawed and unverified

- The plants have not announced retirement, and therefore will be bidding into the 2021-2022 capacity auctions to be held in early 2018, further extending their commitment to remain operational.
- Market changes, including higher scarcity energy pricing and New Jersey's return to RGGI will increase total market-based compensation in the mid- to long-term, improving profitability.

In conclusion, the plants will not even consider retiring until after 2021, making the first three years of retirement grossly incorrect.

- **Unrealistic Retirement Scenario:** Aside from the flawed timing of retirement, Brattle also includes the unrealistic assumption that all of the units of both plants will retire simultaneously.
 - From an operational perspective, simultaneous retirement and decommissioning of three nuclear units would be very difficult to implement.
 - From a reliability perspective, PJM will likely not be able to allow simultaneous retirement of nearly 3,500 MW and will, if necessary, offer reliability must-run contracts.
 - From an economic perspective, retirement of any generating unit in New Jersey or the broader PJM market could change the economics of the nuclear units, increasing profitability and negating the need for early retirement.
- **Ridiculously Low Discount Rate:** Brattle applies a stated 3% discount rate to the projected cost savings. This discount rate, however, is ridiculously low thereby artificially increasing the benefits of keeping the plants operational. Without the underlying backup, however, it is difficult to know the basis for this assumption or the benefits to which it is applied to make a firm determination. If it is applied to projected electricity cost savings to ratepayers, the assumption is ludicrous on its face given the risk-return structure of alternative investments to which the out-of-market support could be applied. Although 3% may be appropriate for the projected costs to support the nuclear power plants, a much higher rate should be applied to the benefits as they are uncertain and dependent on future energy prices. At a minimum, the appropriate discount rate for benefits should be above the weighted average cost of a regulated utility.

The itemized list above represents just a few of the problems that renders the Brattle Report questionable and suspect for any consideration concerning the New Jersey Nuclear Power Plants and potential out-of-market support.

I highly recommend that the Brattle Report be disregarded until it can be thoroughly understood and verified with the disclosure of standard industry detail on underlying assumptions and results.

CONCLUSION

There is no pressing need to make a decision now on whether or not to award out-of-market support to the New Jersey Nuclear Power Plants.



Statewide Hispanic Chamber Of Commerce Of New Jersey

Testimony of Carlos Medina

Chairman

Statewide Hispanic Chamber of Commerce of New Jersey

Before a Joint Hearing of the New Jersey

Senate Environment and Energy Committee

Assembly Telecommunications and Utilities Committee

Public Hearing On

S3560 and A5330

Establishes Nuclear Diversity Certificate program

Committee Room 4, 1st Floor, State House Annex

Trenton, NJ

Wednesday, December 20, 2017

1280 Wall Street West, Suite 312, Lyndhurst, NJ 07071, (201) 935-0035 Fax: (866) 226-1828

chamber@shccnj.org

- My name is Carlos Medina and I am the Chairman of the Statewide Hispanic Chamber of Commerce of New Jersey which is the voice of 119,000 businesses that call New Jersey home and contribute \$20 Billion annually to the New Jersey economy.
- At the chamber, we work closely with a number of businesses and organizations throughout the State of New Jersey and many of them have stressed how important it is to find a solution to the energy crisis we face.
- As you've heard, two of New Jersey's nuclear energy plants are at risk of prematurely shutting down and the impact that will have on New Jersey's businesses is tremendous.
- Without these nuclear plants, it has been estimated that we'll lose hundreds of millions of dollars – more than \$800 million per year - in economic activity across the state and we'll lose between 5,800 and 6,100 good-paying New Jersey jobs.
- It will cost New Jersey businesses less to preserve New Jersey's nuclear plants than to replace them. Different studies have calculated that replacing Salem and Hope Creek nuclear plants would increase New Jersey electricity bills by over \$400 million per year.
- That would be devastating to many New Jersey businesses.
- Not to mention, if you consider the benefits of continued operation of Salem and Hope Creek nuclear plants to the cost of saving these plants, you will see the benefits outweigh the costs more than 6 times.
- These New Jersey nuclear plants provide more than 90 percent of our state's carbon-free electricity. Without them, we'd see a significant rise in carbon and other harmful pollutants.
- And perhaps most importantly, nuclear energy plants are one of our state's most reliable source of 24/7 energy, provide close to half of our state's power and ensure a fuel diverse mix of resources to meet the energy needs of New Jerseyans. If Salem and Hope Creek go away, how will we replace that energy supply? It is my understanding that most of

that energy would be replaced with fossil fuels that produce carbon and other pollution.

- In other words, without nuclear power the State would be left with one fuel source in its generation mix. Preserving energy diversity is critically important to mitigating threats to the electricity supply such as extreme weather that we have seen more recently in the State. This is a significant issue for many of the businesses that make up the Chamber. In a December 2016 study, the North American Electric Reliability Corporation (NERC), pointed out that "reliance on a single fuel increases vulnerabilities, particularly during extreme weather conditions[.]" New Jersey itself has experienced severe weather events in recent years, including Superstorm Sandy in 2012, and the 2014 Polar Vortex that crippled much of the northeast. Preserving a diverse generation mix that relies on multiple sources of fuel is essential to reducing the risk these potential common failures posed to the power grid.
- We all want the same thing – we want to make sure when we go home or go to work, that that power we use is being generated in a safe, reliable, cost-effective, and low-carbon/low-pollution manner.
- This is why I stand with our fellow chambers of commerce (many of which testified in support of the Salem and Hope Creek nuclear plants last week), businesses, workers and families throughout the state on this issue and ask for the General Assembly's support in passing the Nuclear Diversity Certificate legislation.
- The Nuclear Diversity Certificate legislation provides our state with the best solution to preserve Salem and Hope Creek nuclear energy plants in New Jersey, power our businesses, and ensure our great state will continue to be a national leader in carbon-free energy production.
- Investing in our nuclear plants is good for our economy, for New Jersey businesses and residents, and for the environment.
- On behalf of our members, I urge you all to support the Nuclear Diversity Certificate program legislation and favorably vote it out of committee.
- Thank you.



**Testimony of the
Environmental Defense Fund
Before the New Jersey Senate Committee on Environment & Energy and the
Assembly Committee on Telecommunications and Utilities
S3560, A5330
December 20, 2017**

Good morning. My name is Mary Barber and I'm the Director, New Jersey Clean Energy for the Environmental Defense Fund. EDF is a national non-profit membership organization engaged in linking science, economics and law to create innovative, equitable and cost-effective solutions to society's most urgent environmental problems. Thank you for this opportunity to comment on this very important issue.

As stated in the joint letter to legislators from EDF, Rethink Energy and NRDC, EDF agrees that a time-limited zero-emissions credit for nuclear plants should be considered if PSEG can demonstrate the plants are in severe economic distress and the support is narrowly tailored and tied to protections for workers, communities and the environment. And that any program that is established to support existing nuclear plants includes a commitment and a plan to accelerate the adoption of clean energy.

This bill establishing a Nuclear Diversity Certificate program provides none of the above and should be rejected.

After years of making enormous profit on its plants in the competitive market, PSEG is now looking for a bailout in the face of competition from cheaper energy sources like wind, solar and natural gas. Under this bill the average residential NJ customer would pay an extra \$40 every year, with no cutoff date to keep these plants online. And gets nothing in return.

We recognize that there are legitimate reasons to be concerned about the premature retirement of these plants, including the loss of low-carbon emitting sources before a transition to clean energy resources is complete and the loss of jobs and contributions to the local tax base. But how New Jersey responds to these concerns will significantly impact ratepayers and the progress toward establishing a clean

energy economy for years and perhaps decades to come. The legislature will be judged on whether it proceeds with a corporate bailout for a publicly-traded company that finished 2016 with \$3 billion in gross profit and whose stock increased 24 percent in the last 12 months, or if you take the time to consider this issue in context, not isolation, in order to determine the impacts to ratepayers, clean energy investment, and the effect on local jobs and economic development.

In Illinois, when the utility asked for a bailout, the legislature first conducted a multi-agency study. The legislature found that the initially requested subsidies were \$300M a year more than what was needed to keep the plants running. At the end of the process, only two of the six plants for which a subsidy had been requested were found eligible to receive support. Today all six are operating.

This bill raises many questions and provides few answers. Some examples include:

There is no basis for some of the findings that are cited as support for the bill. For ex: Pg. 2, Section 9, states "the electric power demand in this State currently met by nuclear power plants would not be met by renewable energy sources if those nuclear plants cease production." What is the basis for this statement? How much demand could be met by renewables and increased efficiency? At what price? What are the alternatives to the subsidy being proposed? We simply don't know.

The bill does not require PSEG to open their books to the public so the company financial claims can be reviewed. Yet the bill goes on to state that the Board of Public Utilities should complete a proceeding that will establish a Nuclear Diversity Certificate program that will provide the opportunity for comment and public hearings. With what information is the public expected to base their comments on if all of the most pertinent information is kept secret?

How was the kilowatt hour charge amount determined? And with what information provided by the utility or other entity to whom?

Corporate handouts without open books, without a demonstration of need, and without a thoughtful look at benefits to be obtained don't make sense. The New Jersey legislature should reject this bill.



Michael V. Kerwin
President & CEO, Somerset County Business Partnership
Testimony to the Joint Session of the
Senate Environment and Energy Committee and
Assembly Telecommunications and Utilities Committee
Statehouse, Trenton, NJ
December 19, 2017

I serve as the President and CEO of the Somerset County Business Partnership. The Business Partnership is a 99-year-old Chamber of Commerce that partners with the Somerset County Freeholders to provide economic development services to the entire business community. Our mission is to lead the business community to a prosperous and sustainable future. One of our core beliefs is that adopting the principles of sustainability are good for business and make particular sense in New Jersey, the most densely populated state in the country.

After discussing these bills with our volunteer leadership, we have decided to support these bills for the following reasons:

- The bills support our mission of achieving a prosperous and sustainable future
- The SCBP acknowledges and appreciates PSE&G's investment over the years in alternative energy and energy efficiency
- As a result of these investments, NJ enjoys relatively low energy prices giving us a competitive advantage compared to other states and countries
- We support preserving a diverse source of power, rather than relying primarily on one energy source (natural gas)
- In particular, we value the role that nuclear power plays in reducing our carbon footprint

For that reason, SCBP supports the proposal to create a reasonable safety net to support nuclear power in NJ.

Respectfully submitted,

Michael V. Kerwin

**Testimony Before The
Senate Environment & Energy Committee and
Assembly Telecommunications & Utilities Committee
S3560/A5330
December 20, 2017
Chip Hallock, President & CEO
Newark Regional Business Partnership**

My name is Chip Hallock, president and CEO of the Newark Regional Business Partnership (NRBP). The discussion today about closing nuclear generation plants at Salem and Hope Creek will justifiably focus on many of the local and regional economic impacts – something I fully appreciate as an advocate for regional economic growth in the Newark region. And while such closures would have a profound effect in the Salem County environs, I'm here to talk about the impact in northern New Jersey and throughout the state.

NRBP focuses on meeting the needs of our 400 members with interests in the Newark region. About half of our members are Newark-based with the balance throughout the metropolitan area. Our members include corporations, professionals, small businesses, universities and not-for-profits and represent various industries such as: Professional Services (engineers, attorneys, architects, accountants); Real Estate and Construction; Banking, Financial Services and Insurance; Transportation; Hospitality and Entertainment; and Educational Institutions.

NRBP serves as a connector to people and information that will make our members more successful. We do so through extensive one on one discussions, introductions and events. We serve also as advocates for our members by supporting public policy that adds to Newark's revitalization and New Jersey's economic competitiveness. I appear today for that reason and in that role.

For decades, our organization has actively supported improvements to our state's transportation infrastructure: roads and bridges, the Northeast Corridor and PATH, Port Newark and Elizabeth, Newark Liberty International Airport and more. We have also weighed in on policies that have helped to expand telecommunications in the internet age, fortified our gas and electric infrastructure and underscored the inadequacy of water and waste water systems. All of these assets require economic investment and forward-thinking policies – something in New Jersey we have not always been good at.

Newark is New Jersey's largest City and like hundreds of other municipalities, it will not be immune to the disappearance of a major source of energy. Nuclear power provides close to half of our state's electricity. As a result, it supports thousands of jobs and over a quarter

million dollars per year in state GDP...and it enables tens of thousands of other employers to flourish. Nuclear doesn't only generate electricity in Salem County - it helps to power Newark and the rest of the state.

We cannot continue to revitalize and grow cities like Newark unless we can turn on the lights, computers, heat and air conditioning in businesses, schools and residences. Business trends, weather-related events and more have a profound impact on the availability and cost of electricity. It would be shortsighted to lose a major source of power generation and be beholden almost exclusively to one fuel source.

In the last several years, we worked with lawmakers and PSE&G on electricity transmission and the Energy Strong electric and gas infrastructure program in an effort to improve safety and reliability for our members and their employees. PSE&G has been forthright in presenting practical solutions to significant energy challenges and that leadership is greatly appreciated.

This legislation strikes the balance of providing a safety net for New Jersey's energy future, preserving jobs, and ensuring consumer protections to the public - including our members.

Often in New Jersey, we have postponed and avoided dealing with issues that are the lifeblood of our state's economy. We cannot do so with the issue of maintaining nuclear power plants to provide electricity. I urge you to vote in support of this measure.

**Paul Boudreau, President
Morris County Chamber of Commerce
Testimony Before The
Senate Environment & Energy Committee and
Assembly Telecommunications & Utilities Committee
Trenton, N.J.
Dec. 20, 2017**

I am Paul Boudreau and I am the President of the Morris County Chamber of Commerce. Thank you for the opportunity to speak before you this morning about nuclear energy – and how critical it is to the State of New Jersey.

First some background about my organization. The Morris County Chamber of Commerce serves its members and the people of Morris County as a dynamic business organization that provides opportunities for personal growth, business success and community leadership.

Our Chamber has close to 900 members that employ 74,000 people in Morris and the surrounding counties.

The Chamber seeks to help each member realize their business and community involvement goals. Regardless of the size of our member organizations, we work with key leaders at all levels to develop a strategy that supports the culture and specific objectives of their enterprise.

The Chamber meets the needs of our members by partnering with our business members, community organizations and public officials to "move the needle" on key issues that impact public policy, employment, investment, education, business growth and the non-profit community. It is in that capacity that I am here before you today.

On the energy front we have been active in supporting a reliable and resilient energy grid. We have testified at BPU hearings over the last few years on a number of projects including Susquehanna/Roseland, The Montville/Whippany Upgrade project and the North Central Reliability Project. We also participated in the FERC hearing in Clinton Township on the Penn East Pipeline. Our state needs a diverse portfolio of energy resources that together serve the energy needs of our businesses and residents.

Morris County is rich in history, culture, natural landscape, extraordinary schools and open space. And although it is over two hundred miles from Salem County it will not be immune to the detrimental impacts of premature closure of the Hope Creek and Salem units.

Nuclear energy powers roughly half of New Jersey – including Morris County – and based on studies completed by the Brattle Group, if that energy were to suddenly go away, it would increase energy prices. That would hurt businesses in Morris, Sussex and Salem counties,

including many of my members. Furthermore, nuclear energy is an economic engine for our State, supporting nearly 6,000 jobs and contributing \$800 million per year in gross domestic product. So in short, this challenge is not a South Jersey issue -- it is an issue for all of New Jersey (including the business community in Morris County) to be concerned about.

That is why I urge this body to act now and pass legislation to ensure a nuclear safety net. You may have heard critiques that the bill is a "bailout" and the like -- but I caution against distracting language like this. No one is in favor of a blank check to any business. The legislation requires a thorough review of the financial data and contains many other consumer protections that will provide a safety net to ensure that these plants do not prematurely retire. This is an important piece of legislation and I applaud the sponsors and urge committee members to vote in favor of this bill.

Thank you.

Testimony of Kenneth Thoman
On behalf of Local 94 of the International Brotherhood of Electrical Workers

Good Morning. My name is Bud Thoman. I am the president and business manager of Local 94 of the International Brotherhood of Electrical Workers.

Local 94 represents more than 3,600 brothers and sisters who are employed by Public Service Enterprise Group in electric generation, electric distribution and transmission, gas distribution and appliance service, and other work in support of those operations.

750 of the members of Local 94 work at PSEG Power's three nuclear plants at Artificial Island – Salem I & II and Hope Creek.

I am here today to talk about the importance of those plants to New Jersey.

The demand for electricity continues to increase – everything is plugged-in these days.

That's why the members of Local 94 who work in nuclear, work in four shifts. Those plants run 24/7/365 generating safe, reliable, clean electricity.

Those plants provide baseload power – nearly 50% of New Jersey's electricity. They run day and night, whether the sun shines or it's pouring rain.

We need our electric power to be reliable. That's nuclear.

We also need our electric power to be clean. That's nuclear.

By law, New Jersey must reduce CO2 emissions to 1990 levels by 2020 and must meet a much tougher target of 80% reduction below 2006 levels by 2050.

I was a member of the DEP's Clean Air Council for 14 years. I believe we're still on track to meet that 2020 target.

Salem I and II, and Hope Creek produce no greenhouse gas emissions. They also produce no NOx, no SOx and no particulates.

But we must keep those plants running if New Jersey is going to meet future clean air targets.

Solar and other sources of renewable energy are great for New Jersey. Members of my local build some of PSEG's solar power plants.

But solar and other renewables are use it or lose it. We do not have the technology to store electricity in any significant amount.

Renewables today are not a substitute for round-the-clock power.

If the market puts nuclear at risk, it also puts clean air and reliability at risk.

And it puts jobs at risk.

We are talking about 750 full-time, good quality jobs running those plants. And that's just within the IBEW.

There are many hundreds more working full-time at Hope Creek and Salem I and II, and hundreds more on top of that who provide vital work when the plants are refueled.

For all those reasons – to meet the demand for reliable electric power, to help clear the air, and to provide good, high-quality jobs – I support nuclear power in New Jersey.

**1William Mullen
President, New Jersey Building and Construction Trades Council
Testimony Before The
Senate Environment & Energy Committee and
Assembly Telecommunications & Utilities Committee
Trenton, N.J.
December 20, 2017**

Thank you Chairman, my name is Bill Mullen and I am the President of the New Jersey State Building and Construction Trades Council. I represent over 100 local unions of Electrical Workers, Iron Workers, Laborers and Pipe Trades, comprised of over 150,000 men and women. One of our missions is to respond to issues that affect working families, which is why I feel compelled to support S- 3560/A-5330.

Throughout the plant's life, thousands in my trade have been employed there in various capacities, especially during refueling outages. The skilled labor required for these jobs is of vital importance to support the plant's operations. If a safety net is not established and these jobs disappear, so will the skilled labor. This will leave a void in the economy and in the job sector that we do not want to face. I urge you to support S- 3560/A-5330 and to support these jobs.

**Before the New Jersey Senate Environment and Energy Committee and the Assembly
Telecommunications and Utilities Committee**

In a Joint Committee Meeting on S3560 and A5330

Ryan Fitzpatrick
Deputy Director for Clean Energy
rfitzpatrick@thirdway.org

In General SUPPORT of Policy Efforts to Preserve Carbon-Free Nuclear Power

December 20, 2017

Mr. Chairman, Members of the Committee, my name is Ryan Fitzpatrick, and I am the Deputy Director for Clean Energy at Third Way. Third Way is a nonpartisan public policy think tank based in Washington, D.C. that promotes pragmatic solutions to some of the nation's most complex challenges. My program focuses on the challenge posed by climate change, and the need for a number of clean energy tools to drastically cut emissions in time to avoid the most damaging impacts of rising temperatures.

I am pleased to appear before this Committee today to reinforce just how important nuclear energy is in this fight against climate change, and the need to ensure that existing nuclear plants are allowed to continue their contribution toward ambitious decarbonization goals.

Nuclear power plants across the country are facing economic headwinds and are at risk of closure, due mostly to cheap natural gas and the failure of markets and public policies to adequately reward nuclear plants for their many attributes. The loss of these important low-carbon assets threatens the foundations of America's clean energy progress. Taking action to stem these losses and maintain the nation's nuclear reactor fleet is among the lowest-cost clean energy options available today. Federal and state governments should take steps to ensure these plants continue to contribute to a low-carbon future, and should keep these facts in mind as they do:

- More than half the U.S. nuclear fleet may currently be at risk of closure.
- These at-risk reactors constitute America's largest source of clean energy, generating more electricity as all wind, solar, and hydroelectric power plants in the country combined.
- If existing reactors retire prematurely, they are likely to be replaced predominately by natural gas-fired power plants, which will cause emissions to rise.
- Today's power markets do not fully value the climate and grid benefits of America's nuclear fleet – something that state and federal policymakers should resolve, as they have for other important sources of clean energy like wind and solar.
- In addition to the climate and grid benefits, preserving these plants maintains thousands of jobs, protects air quality and public health, and supports billions of dollars in economic activity and federal and state tax revenue.

Recent analyses suggest that upwards of half of America's nuclear plants will be economically-challenged in the near future, putting them at risk of closure. And there is ample research and real-life examples to conclude that the vast majority of this carbon-free generation would be replaced by natural gas—and even coal in certain cases—pushing emissions up when we need to be ratcheting them down.

To get a sense of the magnitude of the challenge, consider this: if we use the lower estimates and assume that half of the nation's plants (about 55,000 megawatts of nuclear power) are threatened by today's economic and policy landscape¹ and those plants are replaced by natural gas generation, CO₂ emissions could increase by roughly 156 million metric tons annually.² That would mean a 9% increase in overall U.S. power sector emissions.

Closure of New Jersey's nuclear reactors would contribute heavily to this backsliding on our climate efforts. Nuclear power plants produce the vast majority of New Jersey's carbon-free electricity, generating ten times the amount of power produced by all renewables in the State. If, hypothetically, the reactors operating at Salem and Hope Creek generating stations were taken offline in the near future, that generation would likely be replaced almost entirely by natural gas, given the availability of resources and cost projections in this region. Switching all of this carbon-free generation to gas would result in an increase of 12 million metric tons of carbon dioxide equivalent or more.³ For comparison, that's roughly 12% of New Jersey's greenhouse gas emissions last year. Not just in the state's power sector. That's 12% of *all* of its emissions from power, transportation, industry, buildings, etc.⁴ That would be enough to wipe out all of the annual emissions reductions that New Jersey has achieved since 2009, would likely cause the State to miss its 2020 emissions targets, and make its 2050 emissions goals—an 80% reduction below 2006 levels—much harder to reach.⁵

The good news is that, despite today's economic challenges, preserving the existing U.S. nuclear fleet is one of the most affordable ways for America to decarbonize its electricity sector. In our 2016 analysis, Third Way found that, in all but the most remarkable situations, the costs associated with keeping an economically-challenged reactor online are actually less than the cost of building new wind, solar, or even natural gas generation to replace it.⁶

¹ Bloomberg New Energy Finance, "Reactors in the red: financial health of the US nuclear fleet", July 2016.

² Calculations assume 55 percent of annual U.S. nuclear electricity generation, or 438.5 million MWhs, is lost and replaced by new natural gas combined cycle power plants with a heat rate of 6.69 million Btus per MWh consuming natural gas with 117 pounds of CO₂ per million Btus.

³ Based on a combined average total generation of 27,671,000 MWh annually from Salem and Hope Creek generating stations. This assumes a carbon dioxide emissions rate of 0.42 metric tons per MWh for an average U.S. natural gas plant, based on [heat rate](#) and [carbon dioxide coefficient](#) data from the Energy Information Administration. Also recognizing that significant underutilized coal capacity in PJM could create a situation in which coal partially contributes to replacing lost nuclear generation. A [study](#) by The Brattle Group took this into account in its modeling and found that the generation that stepped in to replace the Salem and Hope Creek plants would increase emissions by 14%.

⁴ New Jersey Department of Environmental Protection, "Greenhouse Gas Emissions in New Jersey," 2017. Available at <http://www.nj.gov/dep/dsr/trends/pdfs/ghg.pdf>.

⁵ New Jersey Department of Environmental Protection.

⁶ Third Way, "Preserving America's Clean Energy Foundation," December 2016. Available at: <http://www.thirdway.org/report/preserving-americas-clean-energy-foundation>.

But this is about more than just the cost of preserving nuclear energy. It's also about the value we get from keeping these plants online. For instance, the CO₂ emissions avoided by the nation's nuclear plants alone delivers an estimated public value of \$6 to \$54 per MWh.⁷ The nation's nuclear fleet also helps avoid hundreds of thousands of tons of harmful air pollutants each year, including: particulate matter, which causes lung cancer, cardiovascular disease, and other devastating health impacts; sulfur dioxide, which causes acid rain; nitrogen oxides, a precursor to smog; and toxic mercury, which can cause birth defects in children. Given these clean air benefits, it is not an exaggeration to say the U.S. nuclear fleet saves thousands of American lives each year.

The nation's nuclear power plants are also an important component of a diverse and secure supply mix, providing a valuable hedge against volatility in natural gas prices. The value of fuel diversity is difficult to quantify, but if the nation's nuclear fleet was replaced by new natural gas plants, every \$1 increase in the price per million Btus of natural gas would cost American consumers an extra \$5.3 billion – or nearly \$17 per person in the United States.

Public policy has recognized and monetized these valuable public benefits delivered by renewable energy – awarding renewable sources between \$30 and more than \$150 per MWh when state and federal incentives are combined.⁸ These subsidies have helped two important resources, wind and solar, to thrive during an economically challenging period for U.S. power producers.

Nuclear power delivers the same benefits as renewable energy, including clean air, CO₂-free power, and increased fuel diversity, while operating around the clock. Therefore, policies to preserve the nuclear fleet would deliver similar and substantial net benefits to the public and should be explored by states with struggling nuclear facilities.

New York was the first state to adopt a policy that rewards the low-carbon benefits of nuclear energy. In August 2016, the New York Public Service Commission approved a Clean Energy Standard which includes zero emission energy credit for qualifying existing nuclear facilities. New York recognized that supporting the existing nuclear units is critical to meeting the state's emissions reduction goals – and to doing so more affordably. Reports have also shown that, by keeping these plants online, the State can avoid losing thousands of jobs in economically challenged areas and \$720 million in tax revenue from these facilities.

⁷ Estimated value of avoided CO₂ emissions ranges from \$12.77 to \$65.00 per metric ton of CO₂ in 2016 USD, based on social cost of CO₂ from U.S. EPA (2015). EPA Fact Sheet: Social Cost of Carbon. U.S. Environmental Protection Agency, December 2015. Reported average social cost of CO₂ for 2015 using 2.5, 3 and 5 percent discount rates inflated to 2016 USD using the Bureau of Labor Statistics Consumer Price Index Inflation Calculator. Public benefit per MWh of nuclear generation estimated using regional average marginal emissions rates ranging from 0.486 to 0.834 tons CO₂ per MWh, as reported by Kyle Siler-Evans, Ines Azevedo, and M. Morgan, "Marginal Emissions Factors for the U.S. Electricity System", *Environmental Science and Technology*, 46(9): 4742–4748.

⁸ Federal ITC reduces overnight capital cost by 30 percent, lowering the levelized cost of solar projects by roughly \$19 to \$63 per MWh. Federal production tax credit delivers \$23 per MWh (rising with inflation) for the first ten years of the project, reducing the levelized cost of electricity from wind projects by \$14.76 per MWh. Benefits of a five-year modified accelerated depreciation schedule (MACRS) are compared to a 20-year straight-line depreciation schedule, resulting in a reduction in levelized cost ranging from roughly \$5 to \$14 per MWh for wind and \$7 to \$22 per MWh for solar projects, depending on capital cost assumptions. Renewable energy has received benefits from state renewable portfolio standards at a value generally ranging from \$10 to \$65 per MWh, according to the [National Renewable Energy Laboratory](#).

Late last year, Illinois passed legislation that values the climate benefits of existing nuclear units via zero emission credits. The Future Energy Jobs Bill was designed to support the continued operation of the states' nuclear plants, several of which were slotted to retire. The six nuclear plants in the state represent 93% of Illinois' clean electricity generation and the Illinois Environmental Protection Agency found that the retirement of the plants would produce an additional 21.5 million metric tons of CO₂ per year, resulting in over \$10 billion in costs to society. The Illinois Department of Commerce and Economic Opportunity analyzed the impact of nuclear plant retirements and found that the closure of the plants would result in the loss of 4,200 jobs and \$1.2 billion in economic activity annually. The passing of this bill will ensure that Illinois will continue to reap these environmental and economic benefits, while at the same time supporting the ongoing development of renewables and energy efficiency in the state.

These two states serve as a model demonstrating how policies can recognize the benefits of both renewables and nuclear, and their approach should be considered by other states with nuclear units at risk. I would hope that the State of New Jersey chooses to continue pursuing policies that accelerate the adoption of renewable energy, if not in this nuclear-focused bill, then in subsequent legislative sessions. Because even if the New Jersey legislature ultimately takes action to help keep these zero-carbon nuclear plants online, additional carbon-free sources are still badly needed to displace natural gas, a fossil fuel that accounts for over half of the State's power generation.⁹ Addressing this natural gas issue will be critical if New Jersey is to meet its long-term emissions goals, and it's going to take a variety of tools including today's nuclear plants and the growth of other clean energy sources.

Eventually, like all power generation infrastructure, these nuclear plants will reach the end of their useful lives and will need to be retired. Many of us are working to ensure that, when this time comes, we will see these plants replaced with some combination of other zero-carbon or very low-carbon power sources like renewables, efficiency, and even advanced nuclear technologies and carbon capture and storage. But that is definitely not what would happen if PSEG and the State of New Jersey allowed these plants to close now or at any point in the very near future. As all of the climate-focused organizations who have testified before these committees in recent weeks have acknowledged, carbon-heavy fossil fuels like natural gas are what will take up the slack for these nuclear plants, and greenhouse gas emissions from this State and this region will rise as a result. That does not seem to be in dispute. The question is how much New Jersey values the climate and other benefits these plants deliver, and how to ensure those benefits are secured efficiently and responsibly.

Our existing nuclear fleet is the foundation on which clean energy progress can be built. If this foundation crumbles, so too will our national energy security, climate, and clean energy goals – taking thousands of jobs and substantial economic benefits with it.

The value of the public benefits to climate, public health, fuel diversity, and local economies far outweighs the cost of the policy supports that are needed to keep these units in operation. Therefore, I thank the members of these committees for taking this issue so seriously, and for exploring legislative solutions that would allow valuable nuclear energy assets to continue contributing to the public well-being.

⁹ U.S. EIA, Electric Power Monthly (February 2017), Tables 1.3.B, 1.9.B.

electricity prices were high because of the high gas prices, but since the nuclear units did not have to buy gas, they profited heavily.

Second, the issue of imposing a nuclear energy tax on the rate payers of New Jersey is a complicated issue with large economic consequences for the consumer and the robust New Jersey economy. The rate payers in New Jersey deserve a thoughtful analysis of the need for a nuclear tax, and a robust legislative debate on the wisdom in imposing such a burden. Authorizing such a tax is a significant legislatively-imposed burden and should not be rushed through a lame duck session. It is clear by PSEG's own admission that their nuclear plants are not in immediate economic trouble, and looking down the road it is not clear that PSEG's nuclear plants will be in economic trouble in the future. PSEG has continued to say that the plants remain profitable. This current legislative proposal would result in a nuclear tax in the range of \$300 million to \$320 million per year. Such a significant cost to New Jersey rate payers and businesses should not be authorized without a thorough review of the need for such a charge and a determination that no other options exist.

But other options do exist. There are several efforts underway that would provide incremental revenues to the New Jersey nuclear plants. Governor elect Murphy has indicated his interest in rejoining the Regional Green House Gas Initiative (RGGI). Rejoining RGGI will ensure that PSEG receives more money for the zero carbon emissions from its nuclear plants. We've done some preliminary economic analysis which we hope to finalize shortly that indicates simply rejoining RGGI may be enough to address PSEG's perceived problem. PJM is also considering changes to the rules in how they determine prices in the wholesale market. Either or both of these changes would result in significant enhancement to the revenues PSEG's plants earn in the wholesale market. It would be premature for New Jersey to take any sort of legislative action until these efforts are better understood.

In conclusion, PSEG itself has noted the detrimental impact of state actions to subsidize power plants. In 2011, PSEG warned that the state's interest in subsidizing certain power plants will cost New Jersey residents and businesses, and will lead the state down a road of proven failure, result in lost jobs, new customer surcharges and will undermine efforts to conserve

energy. PSEG was correct in its warnings at the time, and we urge the committees to heed these warnings now.

Thank you again for the opportunity to testify on these important issues.

**THE HONORABLE JUDD GREGG
NUCLEAR MATTERS ADVOCACY COUNCIL AND FORMER U.S. SENATOR AND GOVERNOR
TESTIMONY FOR THE RECORD
JOINT HEARING OF THE SENATE ENVIRONMENT & ENERGY COMMITTEE AND ASSEMBLY
TELECOMMUNICATIONS & UTILITIES COMMITTEE
DECEMBER 20, 2017**

Good morning. My name is Judd Gregg. I am the former Governor of and a former Senator from New Hampshire. I currently am a member of the Advocacy Council of Nuclear Matters. Nuclear Matters is a national coalition of more than 17,000 members across the country that works to inform and educate the public and stakeholders about the clear benefits of nuclear energy. Together we support solutions that properly value nuclear energy as a reliable, affordable, safe and carbon-free electricity resource that is essential to America's energy future.

I would like to thank Chairman Smith, Chairman DeAngelo and the members of the Senate and Assembly for holding this joint hearing to hear testimony regarding legislation that would establish a "Nuclear Diversity Certificate" for facilities that help maintain the state's fuel diversity and air quality attributes. This is a critical issue for the state of New Jersey and I applaud the Legislature for acting quickly to address it.

As I mentioned when I spoke to your committees earlier this month, our nation's nuclear power plants are vital national assets that provide reliable, carbon-free electricity to tens of millions of households and businesses around the country. Despite their value, a combination of factors – including low natural gas prices and market rules that fail to recognize nuclear's value – have caused otherwise exemplary performing nuclear plants to close around the country and put the future of New Jersey's nuclear facilities in jeopardy.

The Nuclear Diversity Certificate (NDC) program that your committees are considering today is a smart, sensible and cost-effective approach. It creates a process whereby New Jersey can preserve the fuel diversity and air quality benefits of the state's nuclear power plants, while at the same time, ensuring there is both financial oversight from the state to ensure potential recipients qualify for the NDC and ample opportunity to continue efforts to develop additional sources of energy production.

It is a fact - nuclear energy is important to New Jersey. The state's facilities provide over 38 percent of the state's energy, more than 97 percent of its carbon-free energy and support up to 6,100 jobs. They also fuel \$820 million in annual state economic activity.

As a recent IHS Markit study sponsored by Nuclear Matters detailed New Jersey is at a critical juncture. Potential closures in the state would result in less resilient power supply, which could have catastrophic impacts to New Jersey consumers in the event of a significant event such as a

hurricane or a deep freeze in winter; a decrease in economic activity in the state and more volatile and higher consumer power bills. In fact, the IHS Markit study found that losing nuclear energy could result in a 4% increase in the average retail power price for customers. Further, as the report points out, premature nuclear power plant retirements cause a greater reliance on natural gas-fired generation that results in a net increase in CO₂, SO₂, and NO_x emissions from power generation of 13 million metric tons (MMt), 3,063 metric tons, and 118 metric tons, respectively, with an environmental impact cost of more than \$530 million per year. That is almost \$1.8 billion dollars per year in economic, environmental and electricity benefits for the consumers of New Jersey. The NDC program amounts to an overwhelming benefit to cost ratio of "6 to 1" when you consider the total benefits and costs. As a former state executive and legislator, I can honestly state this is a great deal for the citizens of NJ.

Finally, it is important to remember the critical role nuclear energy can play for a single state and an entire region. Nuclear power provides high paying jobs and long-term energy security with a 60-year life for nuclear power stations and low operating costs. Nuclear energy is affordable and predictable in cost because there is little fluctuation in production costs and the average fuel cost is more economical compared to other energy sources. I agree with the Nuclear Matters' study conclusion that New Jersey benefits from a diverse portfolio.

We know that when nuclear plants close, they are replaced by natural gas-fired power plants. In New Jersey, where nuclear energy and natural gas are the predominant sources of power, we know that the elimination of nuclear would make the state almost completely dependent on natural gas. The NDC helps provide a mechanism that does not put the fate of the state's electricity grid in one type of supply.

There are ample examples of what happens when nuclear power plants close. We've seen the devastating impacts to the local communities, to jobs and to our air quality.

New Jersey is indeed at a critical juncture. I applaud the Legislature for its approach to developing a solution that properly values the air quality benefits and fuel diversity that nuclear power brings to the state and I urge you to move expeditiously to create this platform that will protect this critical New Jersey asset.

Thank you.



Testimony of Evelyn Liebman, AARP NJ Director of Advocacy

OPPOSING S3560/A5330

**Before the Senate Environment and Energy Committee and the Assembly
Telecommunications and Utilities Committee Concerning Nuclear Power Plants**

December 20, 2017 State House Annex, Trenton, New Jersey.

Good morning. My name is Evelyn Liebman. I am the AARP New Jersey Director of Advocacy. Chairmen Smith and DeAngelo and Members of the joint committee, thank you for the opportunity to testify today. AARP believes no one's possibilities should ever be limited by their age and seeks to find new solutions so that more people can live and age as they choose. **On behalf of AARP's 1.3 million Garden State members we oppose S3560/A5330 and urge you to vote no on this deeply flawed legislation.**

All consumers must be able to rely on the availability of safe, affordable, and high-quality utility services, indeed these are lifeline services that impact the health and safety of all. We also believe utility rates should reflect prudent use of ratepayer money and fairly distribute costs and savings among consumers, while taking into account households with lower incomes. S3560/A5330 violates these principles and threatens the well-being of consumers throughout New Jersey.

AARP fully supports the testimony provided by Stephanie Brand, the Director of the NJ Division of Rate Counsel. The reasons outlined in her testimony offer more than enough justification to reject this bill. We urge you to stand with consumers who expect and need you to be responsible stewards of not just our members' pocketbooks but the state's economy and the majority of voters who are concerned about rising electricity costs and who are unwilling to pay a nuclear tax. S3560/A5330 would force ratepayers to pay a new tax to benefit profitable corporations. It is a delivery mechanism designed to dish out preferential treatment to a single favored industry, along the way distorting the marketplace in a way that could cost now captive New Jersey consumers and employers even more than the hundreds of millions, perhaps billions, that New Jerseyans would be on the hook for should S3560/A5330 be enacted.

Along with the Division's comments outlining the very real and significant faults in the bill, indeed its very premise, we urge you to consider that the bill contains no serious economic analysis, no cost benefit analysis or cost impact study. Multiplying .4 cents per kilowatt hour (a number for which we can find no basis as an appropriate subsidy for even a genuinely distressed nuclear plant) by the average kwh usage of a residential consumer is not an economic analysis. A simplistic multiplication exercise doesn't begin to describe the full impact of this bill.

For example:

Many consumers rely on a job to pay that average electric bill. According to representatives of the Chemistry Council of New Jersey, the estimated impact of S3560/A5330 on their large members is

\$160,000 - \$320,000 per year. Larger companies could see increases well above this. What is the impact on employers who are going to see higher bills in the hundreds of thousands of dollars? Will they retain jobs, freeze the payroll or move out of the state altogether? How does increasing already high electric rates and operating costs encourage new employers to locate in New Jersey? How does the average resident pay her electric bill when they are out of a job?

Municipalities pay electric bills too – with more of our dollars on top of our electric bills. When our municipalities' electric bills go up, will property taxes go up or perhaps will local services be cut? What choices will our located elected representatives be forced to make? For example, according to publicly available documents, Princeton has appropriated \$400,000 for its electric and non-natural gas costs this year, significantly more than it appropriates for its senior citizens programs. When Princeton's bill goes up under S3560/A5330, will the average residential electric rate payer also be expected to dig even deeper in her pockets to cover the cost of this ill-conceived nuclear tax. And rather than force residents to pay an unwarranted nuclear tax, shouldn't we leave it to them to decide where they want to spend their hard earned dollars?

New Jersey Transit must have a whopping electric bill. Will fares go up because their electric bill is higher? And if that is the case, who pays for the increased fare – the very same average residential rate payer?

None of these important impacts are addressed in S3560/A5330. Nor are the impacts of distorting the deregulated energy market on all the other energy prices consumers must confront. We believe an economic analysis of all of the costs associated with S3560/A5330 must be conducted. Such a cost-benefit analysis should employ the use of independent, scientific and economic research from other jurisdictions, including PJM and the PJM Market Monitor.

Such an analysis should also evaluate the impact of subsidizing out-of-state plants, as seemingly allowable under S3560/A5330, and the competitive advantage such a scheme gives to neighboring states and their residents and the related economic disadvantages to New Jersey. The analysis should also consider the costs and benefits of New Jersey employers and residents subsidizing New Jersey plants whose power is sent out-of-state.

As we feared, this bill picks one winner at the expense of everyone else. It does not protect consumers and offers no real process that is transparent, open and meaningful. Simply put it is a white wash.

As has been stated so many times, PSEG's nuclear plants are profitable and are expected to remain profitable for at least the next several years. If the case for the subsidy is so strong – what's the rush. Before you require we spend \$300 million or more dollars a year for a potentially unending number of years to come, we urge you to slow down and take the time needed to determine how best to balance the interests of New Jersey ratepayers and our economy and the energy industry.

Thank you.

AARP is the nation's largest nonprofit, nonpartisan organization dedicated to empowering Americans 50 and older to choose how they live as they age. With nearly 38 million members and offices in every state, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands, AARP works to strengthen communities and advocate for what matters most to families with a focus on health security, financial stability and personal fulfillment. AARP also works for individuals in the marketplace by sparking new solutions and allowing carefully chosen, high-quality products and services to carry the AARP name. As a trusted source for news and information, AARP produces the world's largest circulation publications, AARP The Magazine and AARP Bulletin. To learn more, visit www.aarp.org or follow @AARP and @AARPadvocates on social media.

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Nuclear Energy Institute
Testimony for the Record
Joint Senate Environment and Energy and
Assembly Telecommunications and Utilities Committees
State of New Jersey
December 20, 2017

I would like to thank Chairman Smith and the Senate Environment and Energy Committee and Chairman DeAngelo and the Assembly Telecommunications and Utilities Committee for giving me the opportunity to speak today. I am Maria Korsnick, President and CEO of the Nuclear Energy Institute. I have spent my entire career in the nuclear industry operating and managing these plants. I was a senior reactor operator, site vice president, chief nuclear officer of Constellation Energy Nuclear Group and, before I joined NEI in 2015, I was senior vice president of Exelon's northeast operations, responsible for the Nine Mile Point and Ginna plants in upstate New York and the Calvert Cliffs plant in Maryland. I am proud to represent this industry and excited about the role nuclear power can play in New Jersey and across the nation.

I have lived in the communities that depend upon these plants. I worked for 17 years at the Calvert Cliffs nuclear plant in Southern Maryland across the Delmarva Peninsula from Salem and Hope Creek. I know these plants are vital contributors to the surrounding communities and the state's infrastructure. Senate Bill 3560 gives this legislature has an opportunity to preserve these valuable assets not just for the benefit of every citizen of New Jersey.

Economic Impacts

Salem and Hope Creek are economic engines for their communities and the state. These plants provide baseload power to the state. They run around the clock, every day, typically even under extreme weather conditions to provide reliable electricity to the state's homes and businesses. Their continued operation will keep electricity prices low. The Salem and Hope Creek Nuclear Generating Stations employ 1,400 people near Lower Alloways Creek. The plants generate over \$800 million each year in economic value to the state, concentrated in these communities. In total, the plans support between 5,800 and 6,100 direct and secondary jobs that are important to the New Jersey economy.

Losing a nuclear plant can have devastating impacts to local communities and the state. When the Kewaunee Plant closed in 2013, the host town of Carlton lost 70 percent of its operating budget. Following the closure of the Crystal River plant in Florida, Citrus County laid off 100 workers and raised property taxes by over 30 percent. In the face of the potential closure of a plant in Michigan, Covert Township was no longer sure if it could afford a new fire truck.

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If these plants close, the downstream consequences of premature plant closures are dire and irreversible. The electricity produced by these plants will need to be replaced and most of that generation will be produced outside of the state. New Jersey would have to import even more electricity, increasing reliance on out-of-state generators and sending New Jersey jobs to neighboring states. Even if new natural gas plants were built in New Jersey to replace the state's nuclear generation, hundreds of jobs will be lost in the process. Replacing the nuclear plants with natural gas plants would likely require fewer than 200 employees, compared to the 1,400 number of workers at Salem and Hope Creek.

When nuclear plants close, electricity prices rise. This is a consequence of the way electricity prices are set in competitive wholesale markets such as the PJM market that covers New Jersey. After ranking all of the plants from lowest to highest cost to operate, the market price is set by the most expensive plant needed to meet demand. If nuclear plants close, the replacement power will come from plants that were previously too expensive to be dispatched by PJM. Two separate economic analyses have each estimated that New Jersey customers will pay an additional \$400 million each year in higher power prices if Salem and Hope Creek retire. These estimates are consistent with what we have seen in other parts of the country. California consumers in the state paid \$350 million more for their electricity after the San Onofre Nuclear Generating Station shut down. Estimates for losing nuclear plants in Illinois, New York, and Pennsylvania show costs increasing by hundreds of millions of dollars annually for consumers in those states.

Environmental Impacts

Nuclear energy provides almost 60 percent of the carbon-free electricity in the U.S. When nuclear plants close, their production is replaced by generators capable of running at all hours of the day and these are typically fossil fuel plants. When Vermont Yankee closed in 2014, all of its electricity was replaced by natural gas and as a result New England's carbon emissions increased for the first time in over a decade. New Jersey's nuclear plants provide 95 percent of the state's non-emitting electricity. They do not emit air pollutants such as sulfur dioxide and nitrogen oxides which lead to acid rain, smog, and asthma.

Nuclear power's ability to provide large amounts of emission-free generation around the clock has allowed the government of Ontario, Canada, to provide its citizens with substantial clean air, and in turn, health benefits. Ontario significantly increased its nuclear generation between 2004 and 2014, reducing GHG emissions and smog days as well as hospitalizations and premature deaths attributed to air pollution. A strong nuclear fleet means the United States

does not have to choose between the health of its electric grid and the health of its most vulnerable citizens.

Reliability and Resiliency Impacts

Nuclear power plants are our nation's most *reliable and resilient* source of electricity. Like other sources of baseload power, nuclear power plants traditionally have low forced and maintenance outage hours. This characteristic helps ensure that nuclear baseload electricity generation is more resilient to disruptions and thus more reliably available. America's first Secretary of the Department of Homeland Security wrote earlier this year, "Only a grid built on diverse and stable sources of energy can withstand evolving threats and keep the lights on throughout America. The goal of grid resilience cannot be met without nuclear power."

For example, while the frigid temperatures produced by the 2013–2014 Polar Vortex created very high electricity demand and impacted the production of electricity from all U.S. generation sources, nuclear generators performed better than all other forms of generation—operating with an average capacity factor of 95 percent. In addition, of the 34 nuclear facilities from South Carolina to Vermont in Superstorm Sandy's path in 2012, 24 continued to operate safely and generate electricity throughout the event. In sum, U.S. nuclear power plants are regularly top performers on the grid during extreme weather events or man-made disasters.

Nuclear plants are hardened facilities that are protected from physical and cyber threats. Nuclear reactors can operate for 18-24 months between refueling outages and always have fuel on site. This means that nuclear power plants are resilient to the risk of fuel supply shortages – enhancing their reliability. Further, nuclear plants are not exposed to short-term fuel cost fluctuations, which directly impact electricity prices.

More broadly, maintaining nuclear as a major contributor to the nation's electric generation capacity enhances fuel diversity. This provides important economic benefits and protects the grid from becoming too dependent on any one fuel source. A diverse portfolio of fuels and technologies serves as a hedge against price volatility and supply disruptions, and is critical to any resiliency program. The North American Electric Reliability Corporation, America's reliability watchdog organization issued its 2017 Long-Term Reliability Assessment this week with the following findings, "Reliable operation of the BPS (Bulk Power System) requires dependable capacity with fuel assurance to address consumer needs, impacts of extreme weather conditions, and sudden disturbances on the system" and policymakers should "consider the reliability and resilience attributes provided by coal and nuclear generation to ensure that the generation resource mix continues evolving in a manner that maintains a

reliable and resilient BPS.” Numerous reports and analyses, as well as common sense, demonstrate that fuel diversity within a region or market is important for the ability of the electric grid to withstand and recover from stresses caused by weather or man-made disruptions.

The investments that we make in our plants are with an eye towards the long-term operation of these units. These plants are well-maintained which has enabled almost all of the U.S. nuclear fleet to receive a license renewal that allows them to run for up to 60 years of service. Some of our plants are in the process of seeking a second license renewal that would allow for 80 years of life. America’s nuclear plants are part of the nation’s long-term infrastructure that supports economic growth.

Policy Response

The economic challenges facing nuclear plants say more about the flaws in the markets in which they operate than it does about the performance of the plants. These market challenges are being felt beyond New Jersey. Market prices that only reflect short-term operational costs do not provide a way for plant owners to realize the broader benefits they provide to our electricity system. Unless the markets are reformed – or policies are enacted by governments – to value fuel diversity, resilience or environmental protection, the market will not provide these attributes.

Over the last four years, five plants have closed before the end of their useful life. NEI has previously warned of the possibility of fifteen to twenty units that could be at risk of early closure. In the face of such a burgeoning epidemic, it has been state governments that have provided leadership. They recognized the role nuclear plants play in their states and the urgent need to act before they were lost.

In October, Connecticut passed a law that would allow some of the generation from the Millstone plant to compete with other non-emitting sources in a clean electricity procurement that is used to meet the state’s environmental policies. In 2016 policymakers in New York and Illinois took action to appropriately value the environmental benefits being provided by nuclear plants facing early closure. Each state implemented a zero-emission credit to ensure that the value of generation without air emissions would be factored into decisions about the future of the plant. These zero-emission credits were designed to work in parallel with renewable energy credits that had been part of the policy framework in those states for years. These states have tailored their policy approaches to what works for them.

These actions taken in New York, Illinois and Connecticut will preserve nuclear generation as the largest source of clean electricity in those states and the thousands of jobs of those who will support their continued operation. States that allowed their nuclear plants to close such as Vermont and California saw increased emissions and higher electricity costs.

Beyond the state level, others are seeking solutions but they take much longer to act. Regional market operators, state and federal regulators are all working to ensure that markets are structured to produce the generation mix we need today and into the future. These efforts are unlikely to create a one-size-fits-all answer that works for every state. This legislature is best-positioned to find a solution that works for New Jersey.

The Federal Energy Regulatory Commission is currently examining how resilience should be valued in wholesale markets as well as the broader question of how state policies should be reconciled in regional markets. There is no timeline for final action on either issue.

PJM recently sent a letter to these committees describing an energy price formation proposal that it has developed. While PJM's proposal would correct long-standing flaws in the market, they did not provide a timeline for when it will even submit that proposal to FERC, let alone an estimate of when it will be implemented. And time is running out. Just this week PJM CEO Andy Ott said that nuclear plants are "casualties by default" because the price of electricity "that they produce a lot of" is understated. In any event, PJM's reform is not aimed at the environmental or fuel diversity attributes provided by New Jersey's nuclear plants and thus would leave those attributes uncompensated. New Jersey should not leave its energy future in the hands of others.

If, however, those federal and regional activities result in increased revenues to New Jersey's nuclear plants, the bill before you provides the flexibility to make appropriate adjustments. The bill allows the Board of Public Utilities to reassess the program every three years and to reduce payments in response to federal policies that value nuclear attributes. The bill represents a "no regrets" strategy for New Jersey – it provides assurances that investments in the plants will be sensible while protecting ratepayers as policies change in the future. The legislation ensures consumer protections by establishing transparency, due process and stakeholder input.

In the end, it is important to consider the full benefits of keeping Salem and Hope Creek running versus the cost of the NDC program. When you compare the estimated benefits outlined in the IHS Markit report prepared for Nuclear Matters that considers economic costs (estimated at \$820M/year), environmental costs (estimated at \$530M/year) and avoided electricity costs (estimated at \$400M/year) to the expected cost of the NDC program (\$280M/year), the benefit to cost ratio for New Jersey

consumers is six to one. Clearly it is 'cheaper to keep' Salem and Hope Creek nuclear plants running in New Jersey benefiting all New Jersey consumers and communities than to let them retire prematurely.

The legislature should not delay in addressing this risk to the state. Once a nuclear plant closes, the decision cannot be reversed later. Nuclear plants cannot be mothballed and reopened later as there is no process to reactivate an operating license once it has been surrendered. The state must act before it is too late.

Passing this bill will have implications beyond New Jersey. The early closure of U.S. nuclear plants has implications for national security. There are 59 reactors under construction worldwide. This global expansion of nuclear power is being driven by China and Russia. If the U.S. forgoes its role as a leader in the global nuclear industry, the world will look to those embracing the technology for leadership, putting them in a position to develop future standards for nuclear energy technology use around the globe. Further, America's nuclear infrastructure supports both its civilian and military needs. Allowing this infrastructure to diminish would adversely affect our defense nuclear complex.

Conclusion

Getting this right is important for our country. An electricity system that is overly-reliant upon a single fuel can leave us vulnerable to attacks or other disruptions. A robust nuclear fleet allows the U.S. to maintain international leadership on nuclear issues. Allowing well-run nuclear plants to close doesn't help the communities that have grown up around them, it doesn't make electricity more affordable for consumers, it doesn't help provide jobs for New Jersey, and it doesn't support our energy and national security. New Jersey has the opportunity to preserve these plants and I encourage you to do so.

Before the New Jersey Senate Environment and Energy Committee and the
Assembly Telecommunications and Utilities Committee

Testimony Regarding
A5330 and S3560

Brett Rampal
Clean Air Task Force

December 20, 2017

Good morning. My name is Brett Rampal, and I represent the Clean Air Task Force, or CATF. CATF is a non-profit environmental organization¹ founded in 1996 to advocate for policies to fight air pollution and climate change. We have worked closely for two decades with leading environmental groups in New Jersey and other states to promote state and federal policies to curb harmful air emissions from power plants.

Thank you for the opportunity to testify today regarding A5330 and S3560, legislation that would enable New Jersey's existing nuclear plants to continue to operate in the face of competition from carbon-emitting fossil fuel plants.

Today, I will focus on the role that New Jersey's power plants play in avoiding carbon emissions and climate change, and why it is appropriate to enact policies to keep them operating in the coming decade.

Let's start with this fact: the world's climate, and New Jersey's, is changing rapidly. Superstorm Sandy, and this Fall's tropical storms Harvey and Irma, are examples of the kind of intensified weather events we can expect from our warming of the oceans. Global warming has increased the probability and severity of extremely hot and wet weather worldwide.² At present rates of change, half the world's population can expect, by 2030, to experience much different climates than we experienced in the late 20th century.³

While political debate continues, there is a broad scientific consensus that these climatic changes are driven by the heating of Earth's atmosphere from carbon dioxide released by the burning of fossil fuels: oil, gas and coal.⁴ If we are going to limit extreme climate change, we need to make every effort to utilize every non-fossil energy source we have today. And timing matters.

Every molecule of carbon dioxide put in the atmosphere today will continue to warm the earth for centuries. Every molecule we emit today matters - essentially forever. And because carbon simply accumulates in the atmosphere, accelerating warming, the only way to avoid the worst climate change scenarios is to avoid emitting carbon altogether. We need a zero carbon energy system by 2050 or soon after and maximum feasible reductions possible until then.⁵

Figure 1 illustrates this point. Consider the atmosphere as a bathtub. We are filling it quickly with carbon, approaching the spillover limit at which the atmosphere changes in ways that may alter Earth's climate beyond human experience - a limit generally reckoned to be two degrees Celsius increase above pre-industrial levels; this temperature correlates to about 450 parts per million of

¹ See www.catf.us. CATF is financed entirely by charitable donations, and receives no funds from private sector companies or the U.S. government.

² See Trenberth, Kevin E., John T. Fasullo, and Theodore G. Shepherd. "Attribution of climate extreme events." *Nature Climate Change* 5.8 (2015): 725-730.

³ See Diffenbaugh, Noah S., et al. "Quantifying the influence of global warming on unprecedented extreme climate events." *Proceedings of the National Academy of Sciences* 114.19 (2017): 4881-4886.

⁴ See Intergovernmental Panel on Climate Change, *Understanding and Attributing Climate Change* (2007), http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmsspmp-understanding-and.html

⁵ See Rockström, Johan, et al. "A roadmap for rapid decarbonization." *Science* 355.6331 (2017): 1269-1271.

carbon dioxide in the atmosphere (we are at roughly 400 parts per million today). There is some draining of carbon through uptake in trees and the oceans, but it is occurring at a far slower rate than we are putting carbon in. There is even some evidence that these “sinks” are becoming saturated and therefore the drain is becoming smaller or non-existent.⁶

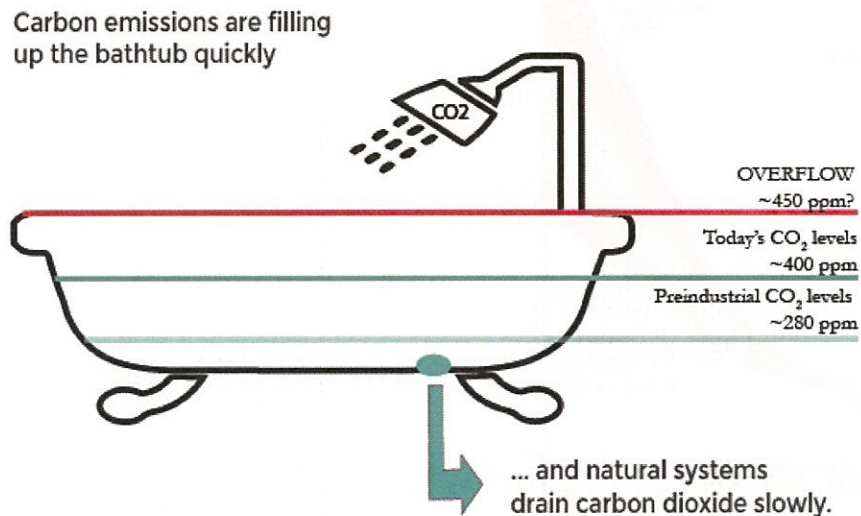


Figure 1: Carbon accumulates and disappears very slowly. Illustration source: Center for Carbon Removal.

The consequence is that to stabilize atmospheric temperature at 2 degrees Celsius above pre-industrial levels, we will need to effectively cut off the spigot, and limit our emissions during this century to no more than 1 trillion additional tons of carbon, as illustrated in Figure 2 below. The lesson: ***we must avoid any emissions we can today to have any hope of stabilizing the planet's climate.***

⁶ See, e.g. Baccini, A., et al. "Tropical forests are a net carbon source based on aboveground measurements of gain and loss." *Science* 358.6360 (2017): 230-234.

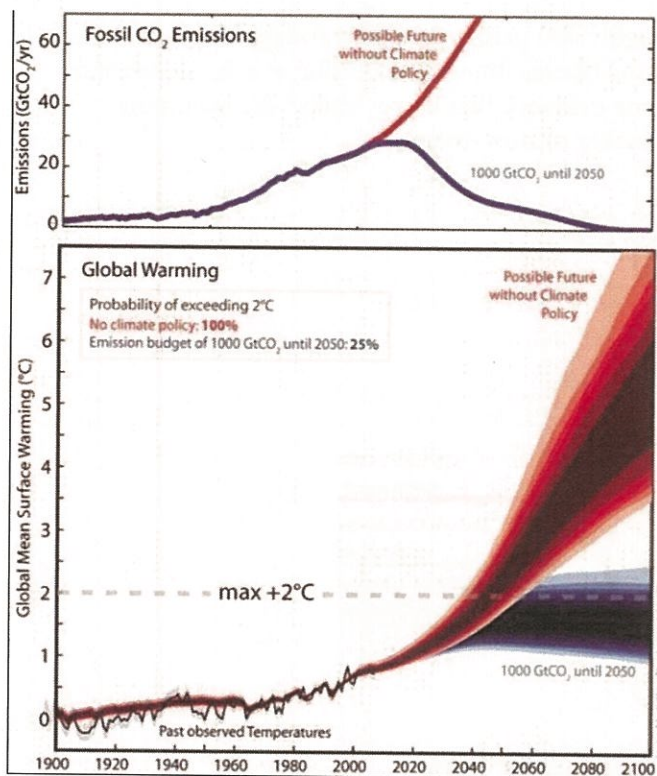


Figure 2: The century's "carbon budget" of 1 trillion tons: the bathtub only has so much space. Illustration source: Science Daily.

What does this have to do with New Jersey's nuclear plants? A lot.

Electricity production is the single largest industrial source of carbon dioxide emissions in New Jersey and the world. And, fortunately, today, about 40% of New Jersey's electricity comes from a carbon dioxide-free source: nuclear power. That put New Jersey among the top three states in zero-carbon electricity share among those that lack large hydroelectric dams. Turning these plants off prematurely would substantially accelerate rather than slow the rate at which the atmospheric bathtub is filling with carbon.

Looking ahead, we can envision a future in which nuclear energy in New Jersey is joined at scale by other zero carbon electric sources such as wind, solar, and carbon capture and storage. But that will take time. Today, wind and solar account for about 5 percent of the state's electricity mix. They can and should be expanded, but this cannot be done overnight.

Consider that, just to **replace** the electricity output of the Hope Creek and Salem nuclear plants with other carbon-free electricity, and not even lower emissions from today, New Jersey would need to site and operate 10 of the largest offshore windfarms operating in the world today, or 10 inshore windfarms equal in size to California's largest onshore wind farms. (See Figure 3 below). (It is worth noting that America's only offshore wind farm operating today, off Rhode Island, would produce less than 1 percent of the electricity as the Salem plant). Or the state would need to increase solar energy output by 15 times present levels, which took more than two decades to reach. And, on top of that, to provide electric reliability from those sources equivalent to Salem and Hope Creek would

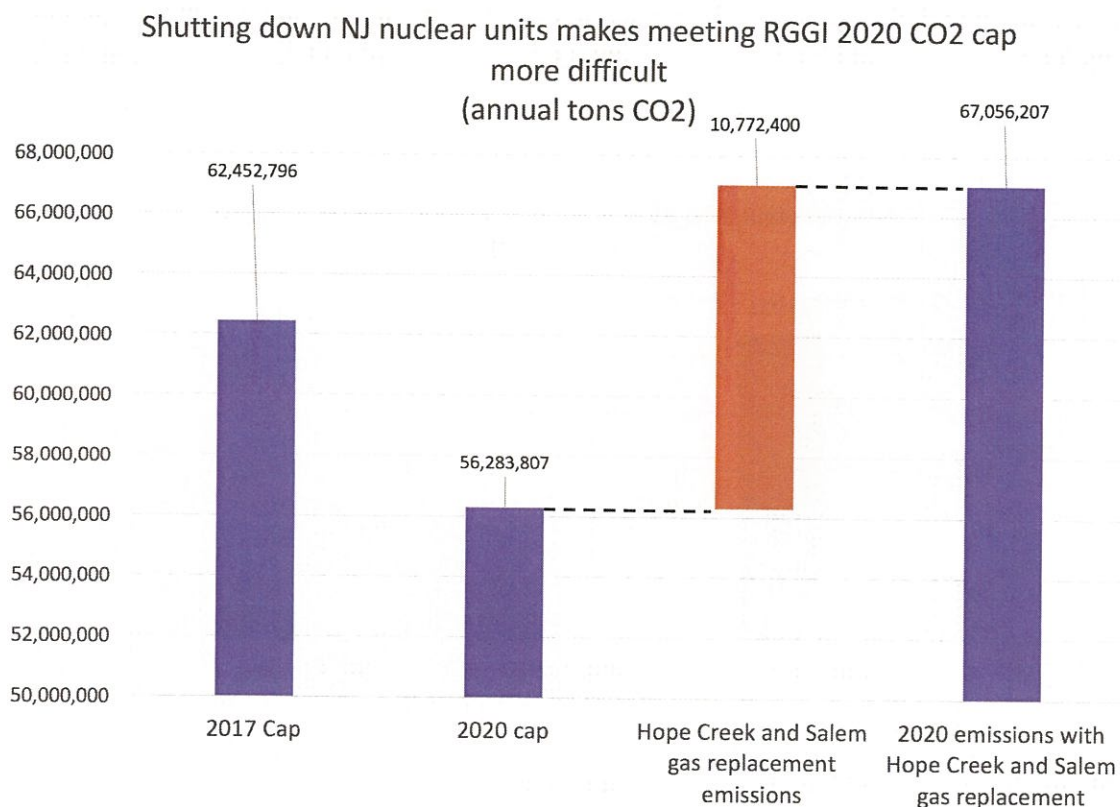


Figure 4: Consequences of turning off New Jersey nuclear plants to achieving CO2 emission caps under the Regional Greenhouse Gas Initiative. Source of figure: CATF, using cap data from RGGI, <https://www.rggi.org/design/overview/cap> and calculations on NJ nuclear output from FERC filings. It is assumed here that gas power plants replace lost nuclear output at an emissions rate of .4 tons CO2 per/MWH.

Looking toward 2050, many considerations will drive which mix of technologies can best eliminate carbon from electricity in New Jersey. Wind and solar are, as noted, coming down in price but face many challenges at very high levels of penetration, including the need for some form of on-demand back-up power for the weeks and months when wind and sun are scarce in the Garden State (today's batteries, even at zero cost, won't do the job because they can only store a day's worth of energy at best). Technologies that use gas with no carbon dioxide emissions are being demonstrated today and could well be part of the solution.⁸ And advanced nuclear plants that depart radically from today's designs and can be manufactured at lower cost are on the horizon.⁹

⁸ See <http://www.sciencemag.org/news/2017/05/goodbye-smokestacks-startup-invents-zero-emission-fossil-fuel-power>

⁹ See Clean Air Task Force, *Advanced Nuclear Energy: Need, Characteristics, Projected Costs and Opportunities*, http://www.catf.us/resources/publications/files/Advanced_Nuclear_Energy.pdf; and Energy Innovation Reform Project, *What Will Advanced Nuclear Power Plants Cost?* (July 2017), <http://innovationreform.org/wp-content/uploads/2017/07/Advanced-Nuclear-Reactors-Cost-Study.pdf>

require billions of dollars of storage or other balancing energy sources. There will be substantial siting, financial and other challenges to achieving this level of wind and solar buildout, lasting a decade or more.

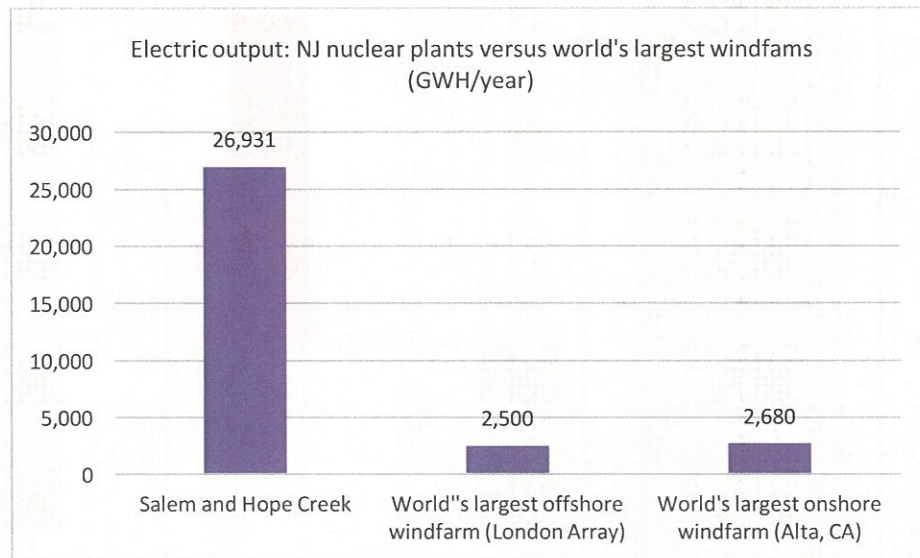


Figure 3: NJ plant output compared to world's largest windfarms

And, again, all of that that would be just hold New Jersey's carbon dioxide emissions to current levels. It would not decrease them dramatically towards zero, as we need to. Meanwhile, as this lengthy buildout occurs, without New Jersey's nuclear plants, carbon dioxide will pour into the atmosphere from gas and coal plants that replace them.

The magnitude of this problem can be seen in Figure 4. Governor-elect Murphy has indicated his intent⁷ to have New Jersey join the Regional Greenhouse Gas Initiative (RGGI), a regional compact that today includes the six New England states plus New York, Maryland and Delaware. RGGI is committed to a relatively modest 10% reduction in CO2 emissions by 2020 from present levels. But retiring Salem and Hope Creek, and optimistically replacing them only with gas fired energy and no coal, regional emissions would grow by about 11 million tons annually. This increase **from New Jersey plant retirements** will substantially increase the difficulty of **meeting the entire regional 2020 cap**, even if the regional cap baseline is adjusted to incorporate the state's current CO2 emissions.

⁷ See <https://www.murphy4nj.com/issues/protecting-the-environment/>

While maintaining New Jersey's nuclear power capability may require a transitional subsidy,¹⁰ that is true of nearly all zero carbon energy sources today, which must all compete against cheap natural gas power. The proposed legislation would provide a subsidy of approximately \$10/MWH, which is substantially less than current effective state and federal subsidies for wind and solar. The federal wind production tax credit alone is \$24/MWH, or roughly two and a half times the value of the Nuclear Diversity Credit proposed in this legislation.

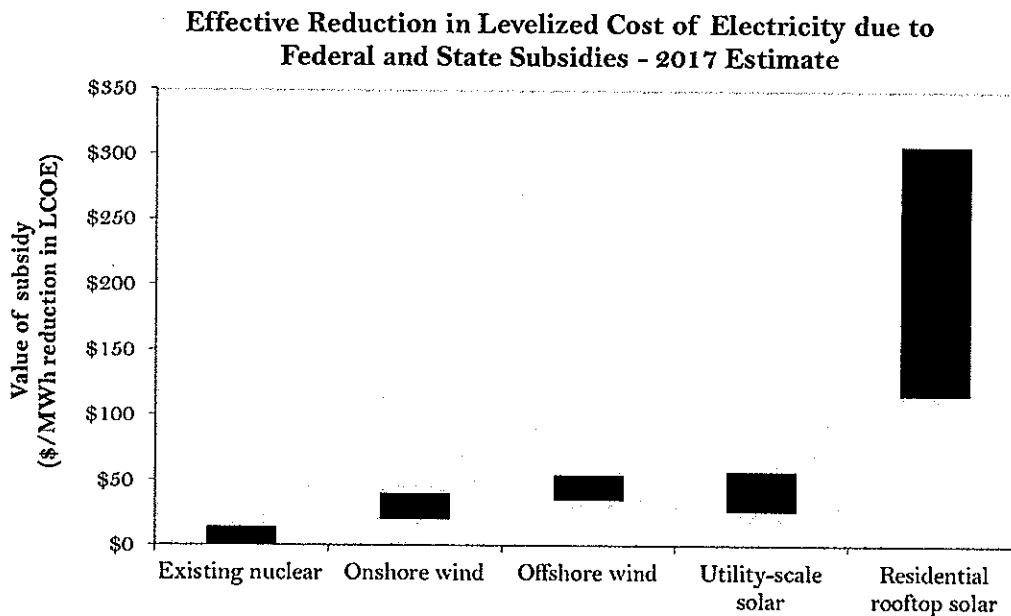


Figure 4 (above): Effective subsidies for nuclear in recent NY and Illinois policies compared with state and federal subsidies for renewable power. Source: CATF calculations, from publicly available data.

A first best policy would be to enact legislation to support not only New Jersey's existing nuclear plants, but other zero carbon sources as well. But that is not the legislation before you today. As New Jersey pursues its low carbon energy future, keeping Hope Creek and Salem online and avoiding millions of tons of annual carbon emissions is a relatively low cost interim and time-limited step to avoid making the serious climate problem worse.

Thank you for your attention, and I look forward to answering your questions.

¹⁰ CATF does not take a position as to whether Salem and Hope Creek actually require a subsidy to continue to operate. That question is to be addressed by the BPU if this legislation is enacted.

Melissa DeCastro, Esq.
Freeholder
Salem County Board of Chosen Freeholders
Legislative Testimony
December 18, 2017

Thank you for letting me speak today. I am Salem County Freeholder Melissa DeCastro and I'm here today representing Salem County and our 64,000 residents.

As you know, Salem County is one of the struggling counties in the state. We urge the committee to support the proposed legislation and more importantly nuclear power in New Jersey. By doing so, you are supporting Salem County and supporting our community.

We are predominately an agricultural community and take great pride in being the Garden Spot of the Garden State.

We have an existing business community as well. However, our local economy has struggled the past few years like many other communities. Major employers have shut their doors and left. This has also created a ripple effect with many small businesses closing shop.

When you talk about the Salem and Hope Creek nuclear plants, you're also talking about our community. PSEG is an **active supporter of the local community** – they provide funding and support to dozens of local community groups. Without their support, many of these groups would not exist.

They are at every community event – available to answer questions and offering their support whenever possible.

They are the backbone of our community.

They are the **county's largest employer** – more than 1,500 employees – a majority of them are Salem County residents.

But it's more than that to us. PSEG and its employees are also buying goods and services from other local businesses. Plus, twice a year the plants do maintenance and refueling outages which require an additional 1,000 contractors.

These contractors fill our local restaurants and hotels and give us a much needed economic shot in the arm. Without these outage periods, many of our small businesses would not survive.

Now it's time to show them our support. The Salem County Board of Chosen Freeholders supports the proposed legislation.

We encourage the committee to take action today and support nuclear power. A "yes" vote is a vote to support Salem County and our community.

Thank you.

80x

**Before a Joint Hearing of the New Jersey
Senate Environment and Energy Committee
Assembly Telecommunications and Utilities Committee
In Support of S-3560/A-5330, Establishing a Nuclear Diversity
Certificate Program**

December 20, 2017

Testimony of Joseph Dominguez

Chairman Smith and Chairman DeAngelo, Members of the Committees: My name is Joe Dominguez, and I am Executive Vice President of Governmental and Regulatory Affairs and Public Policy for Exelon and a proud former resident of the great State of New Jersey. I am pleased to appear before this Committee today in support of the Nuclear Diversity Certificate (NDC) Program legislation. As has been the case in Illinois, New York and Connecticut where legislators and regulators have successfully implemented similar policies to those being discussed today, there is a diverse collection of stakeholders in support of this legislative initiative. The broad and diverse supporters represent consumers, the business community, environmentalists, chambers of commerce, and labor interests, and Exelon is honored to join them to ask for your support in enacting this important legislation.

Background

Exelon is one of the largest competitive power generators in the country, with over 35,500 MW of nuclear, natural gas, and renewable generation. Exelon owns and operates 23 of the nation's 99 nuclear reactors, making us the nation's leader in nuclear generation. Here in New Jersey, Exelon is a minority owner in Salem Nuclear Power Plant, a critical nuclear asset in New Jersey's fleet. I am proud to say that this plant, together with Hope Creek Nuclear Power Plant and Oyster Creek Generating Station,¹ consistently operate through extreme cold and heat, and have a

¹ Exelon owns and operates Oyster Creek, which has 625 megawatts of generating capacity. Oyster Creek employs more than 550 individuals, with a payroll of \$68 million, and a tax impact of \$2.5 million. Pursuant to an agreement with the NJ Department of Environmental Protection, Oyster Creek will close by December 2019.

proven track record of reliability that is unmatched by any other source of power generation in this state.

Beyond our nuclear generation presence in New Jersey, Exelon is the parent company of Atlantic City Electric (ACE). ACE safely delivers reliable and affordable electric service to more than 547,000 customers in southern New Jersey—and proudly employs 560 individuals, several of whom are members of IBEW Local 210 and IBEW Local 210-5.

The Nuclear Fleet in New Jersey Is A Major Economic Engine, Providing Critical Environmental and Fuel Diversity Benefits to the State

The Salem and Hope Creek nuclear plants provide vitally important environmental and fuel diversity benefits to New Jersey. Two independent studies that have been shared with this Committee found that these plants produce up to \$800 million per year in value associated with the avoidance of harmful air pollution emissions, including carbon dioxide. These plants have also provided a critical backbone to New Jersey's infrastructure, comprising nearly half of the state's electricity. At present, New Jersey is deploying and utilizing a diverse energy portfolio—but like many places throughout the United States, under current market conditions, New Jersey is at risk of losing the critical “all of the above” fuel mix required for a reliable, stable and dependable energy supply. In addition, the plants are vital economic engines providing high-paying, long-term employment to thousands of New Jersey citizens, most of who live in a very financially challenged part of the State. The Salem and Hope Creek nuclear plants generate millions of dollars in economic activity. The independent studies noted above found these plants contribute over \$800 million per year in economic value, account for between 5,800 and 6,100 direct and secondary jobs, and contribute over \$37 million per year in state taxes.

Unfortunately for generation stations like Salem and Hope Creek—which are barely past the midpoints of their operating licenses—the market is not adequately compensating these assets. Despite the many decades of life left in these nuclear plants, and the immense value they provide to New Jersey's families, environment and economy, they are at risk of premature retirement.

Nuclear Economics

Nuclear energy is challenged today by three separate headwinds. First, wholesale electricity prices have declined steeply due to the low cost of natural gas following the shale gas revolution. Second, demand has declined significantly as a result of the long-lasting effects of the economic crisis on industrial electricity consumption and innovations in energy efficiency. Third, uneven

market and energy policies presently do not value the resiliency and emissions-free attributes of nuclear energy.

The first two of these headwinds are not the subject of this legislation -- nor should they be. Lower natural gas prices and energy efficiency are good things for our customers and also for the environment to the extent that natural gas-fired generation replaces coal-fired generation. However, legislation is entirely appropriate and necessary to address the third headwind facing nuclear energy, namely, that energy policy and market design is uneven and creates an unlevel playing field between pollution-emitting fossil fuel power plants, on the one hand, and zero-emission power resources like wind, solar, nuclear, and hydroelectric, on the other. In the case of renewables and hydroelectric, over 30 states have policies that provide value for the emissions-free characteristics of these resources. These policies work across the PJM states in conjunction with the current market and provide attribute value to zero-emission power generation. New Jersey, for example, is well known for its focus on solar energy. Without these state policies and additional federal tax incentives, solar energy would not have flourished here. The sole question presented by this legislation is whether nuclear energy -- given its unique zero-emission and fuel diversity resiliency attributes -- should be folded into state policies that already support over a dozen technologies across PJM.

So far, the states that have expressly considered this issue, Illinois, Connecticut and New York, all have concluded that supporting nuclear energy is essential. These states have rejected the very same arguments that have been presented by opponents here. These states have found that the benefits of preserving resilient and emissions free nuclear energy far outweigh the costs. Indeed, in both New York and Illinois, policymakers found that environmental and electricity costs would be many times greater without the nuclear plants. Notably, the gas, oil and coal-fired power plant owners who challenged the policies in New York and Illinois did not disagree. In court filings, these fossil-fuel entities complained that they were harmed because preserving nuclear plants reduces the price of wholesale electricity and, in turn, their profits.

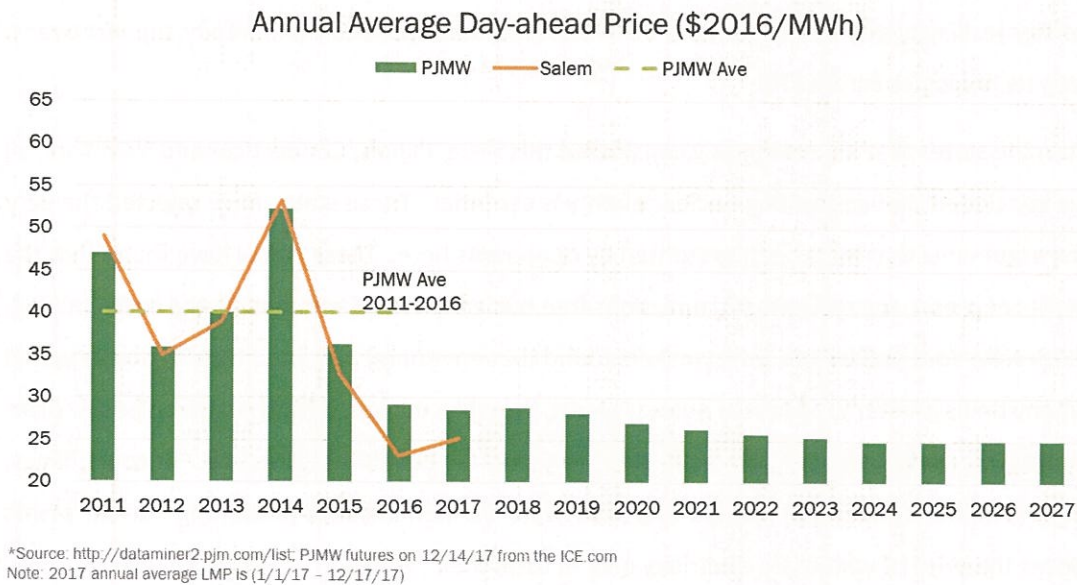
Realizing that the benefits of this legislation outweigh the costs, some opponents acknowledge the value of nuclear but claim that legislation is premature because the plants are not at risk or because other FERC market design changes will eliminate the risk. These arguments are wrong. These units are uneconomic and without fair compensation, the owners must immediately make critical capital decisions that will determine their future. Moreover, the legislation contemplates

a full financial review by the BPU that will determine financial risk and allows the BPU to adjust the cost of the program if market revenues improve due to other reforms.

PJM Market Monitor Admitted that the Salem and Hope Creek Units Did Not Recover their Operating Costs in 2016

Two weeks ago, the PJM market monitor, Joe Bowring, testified that each of the Salem and Hope Creek plants “fell short of covering its annual avoidable costs” in 2016. Nonetheless, the market monitor argued that the units were not at risk in his view because “over the last six years” the units were able to recover their operating costs.²

Exelon does not disagree that Salem was able to recover its operating costs historically. But that fact has no bearing whatsoever on whether the units will be able to recover their costs in the future. The question here is not whether Salem and Hope Creek were profitable in 2011, but, rather, whether they will be profitable in future years. As the chart below illustrates, the currently trading energy prices for 2019 and beyond are significantly lower than they were in 2011 or at any time during the six-year period that the market monitor analyzed.



In the face of this data, it is difficult to understand why Mr. Bowring relied on historic revenue numbers at all. Perhaps more troubling, Mr. Bowring has never reviewed the actual Salem and Hope Creek finances, relying instead on average costs across the US fleet. And, Mr. Bowring omits

² Bowring Testimony, p. 4.

from his analysis the cost of operational risks incurred by any supplier, including the capacity performance penalties that Mr. Bowring championed at FERC. In any event, the legislation requires the BPU to conduct a full financial analysis, including risks, and thus Mr. Bowring's flawed analysis should not provide any basis for delaying needed policy reforms.

PJM's Letter to the Committee is Long on Promises and Short on Details Demonstrating Any Positive Results for New Jersey

While PJM's December 8th letter to Chairman Smith and Chairman DeAngelo and the members of the Committee contains a description of a number of reforms that, if actually submitted to FERC and approved, would begin to provide policy solutions for New Jersey, PJM fails to provide a timeline or commitment to taking any actions to prevent the premature closure of the Salem and Hope Creek plants. I encourage you to consider the following facts.

First, **PJM's letter entirely ignores the environmental benefits provided by existing nuclear power plants.** PJM has no plan to address the uneven playing field in its markets where emitting plants are paid the same as plants that release pollution but don't have to pay for it. Instead, FERC has thus far looked to states to place value on the environmentally beneficial attributes of generation.

Second, **preserving fuel diversity among the generation resources serving New Jersey customers is critically important.** A recent PJM study of the region's gas delivery system found that the loss of one gas pipeline in the Mid-Atlantic region would result in the loss of 11,000 MW of electric generation, and the loss of another pipeline in the region would result in the loss of 10,000 MW—together roughly equivalent to the summer peak of the entire state of New Jersey. PJM's own analysis found that "[r]elying too heavily on any one fuel type may create a fuel security or resilience issue" and that "a moderate level of diversity helps to ensure the system's ability to withstand unforeseen system shocks," including "contingencies beyond those studies and planned for today" as well as "both man-made and natural disasters."

Yet no concrete proposals have been developed, considered by stakeholders or submitted for approval. PJM has no approved timeline, schedule, or plan to undertake such actions. The State of New Jersey cannot afford to wait. The retirement of a nuclear power plant is irreversible. Once these unique resources are gone, they are gone forever.

States Have Taken Action To Preserve the Benefits of Nuclear Power

In the last four years, over 11 GW of nuclear generation around the country has either announced premature retirement or has already retired. In an attempt to prevent that outcome, as noted above, several states are taking steps to preserve their nuclear fleets. In New York, the Public Service Commission approved a Clean Energy Standard, a 12-year plan that values the environmental contributions of nuclear energy and helps ensure the continued operation of the three nuclear plants in New York. In Illinois, legislators passed and Governor Rauner signed into law, the Future Energy Jobs Act that compensates nuclear power plants at risk of early retirement for emission-free attributes, via a ten-year Zero Emissions Standard. According to the Illinois Environmental Council,³ "Passage of the Future Energy Jobs Bill is a victory for people in every community across Illinois who deserve more jobs, lower electric bills and healthier air to breathe. It is a victory for businesses in Illinois in the clean energy sector and across the economy—and a signal to companies across the nation that Illinois is fertile ground for growth in this field." In Connecticut, legislators passed and Governor Malloy signed into law a bill to support Connecticut nuclear energy generation by making it eligible to participate in Connecticut's procurement of long-term contracts for clean energy supply.

Nuclear Diversity Certificate (NDC) Program Legislation

The NDC legislation will provide the safety net needed to preserve these vital assets. There is a robust regulatory procedure encompassed within the parameters of the legislation before you that will ensure transparency, oversight and consumer protections. Let me walk you through the process proposed in the NDC legislation. The program will recognize and fairly compensate chosen zero emission nuclear plants for their contribution to fuel diversity and lower emissions in New Jersey. The program will create NDCs which are similar to renewable energy credits (RECs) produced by the New Jersey Renewable Portfolio Standard (RPS) law and, like RECs, are only granted to plants that perform. The legislation has extensive eligibility requirements to protect New Jersey consumers and the environment. First, a candidate plant must demonstrate a significant contribution to New Jersey air quality and document its contribution to diversity and resiliency. Second, the owners must open their financial books to the BPU to document financial

³ "The Future Energy Jobs Bill was the most important climate bill in Illinois history, and the only major Climate bill happening anywhere in the country right now." - <https://ilenviro.org/future-energy-jobs-bill/>

necessity and as a final step the company's corporate officer must make certifications to prove financial necessity. Additional consumer protection is provided in the form of an overall cap on the program costs and a mechanism to reduce payments by any additional attribute-related revenue, avoiding any "double dipping."

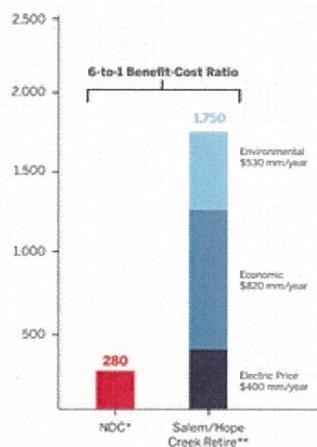
The BPU process provided for in the legislation will provide transparency, due process and stakeholder input. We estimate New Jersey residential customers would see about a \$30 increase in annual costs from the NDC legislation as proposed. But that is the cost of the program – how does it compare to the benefits of preserving the plants? When you add up the estimated environmental benefits (conservatively estimated at \$530 million per year), not to mention the benefits to state GDP (estimated at \$820 million per year), and avoided increases in electricity costs (estimated at \$400 million per year), the benefit to cost ratio for New Jersey consumers is six to one. Clearly it is cheaper to keep the nuclear plants serving New Jersey than to let retire prematurely. Also, IHS Markit's study found that with the loss of the valuable fuel and technology diversity provided by Salem and Hope Creek, New Jersey customers would lose between \$70 and \$230 million per year in resiliency benefits.

NEW JERSEY NUCLEAR DIVERSITY CREDIT (NDC) COST-BENEFIT

The electric bill impacts of the NDC are dwarfed by the benefits of continued operation of Salem and Hope Creek by over 6 to 1:

- 6,100 direct and secondary jobs
- \$530 million/year of environmental impacts primarily from increased CO2 emissions
- \$820 million/year of economic activity
- \$400 million/year of electric rate increases

TOTAL NDC IMPACT



**Based on projected output of Salem and Hope Creek from the Salem Group's Salem and Hope Creek Nuclear Power Plant's Deliveries to New Jersey Delmarva, Jan 2017.
***IHS Markit, The Value to New Jersey Delmarva of Salem and Hope Creek Nuclear Power Plant's Deliveries to New Jersey Delmarva, Jan 2017.
****Based on projected output of Salem and Hope Creek from the Salem Group's Salem and Hope Creek Nuclear Power Plant's Deliveries to New Jersey Delmarva, Jan 2017.



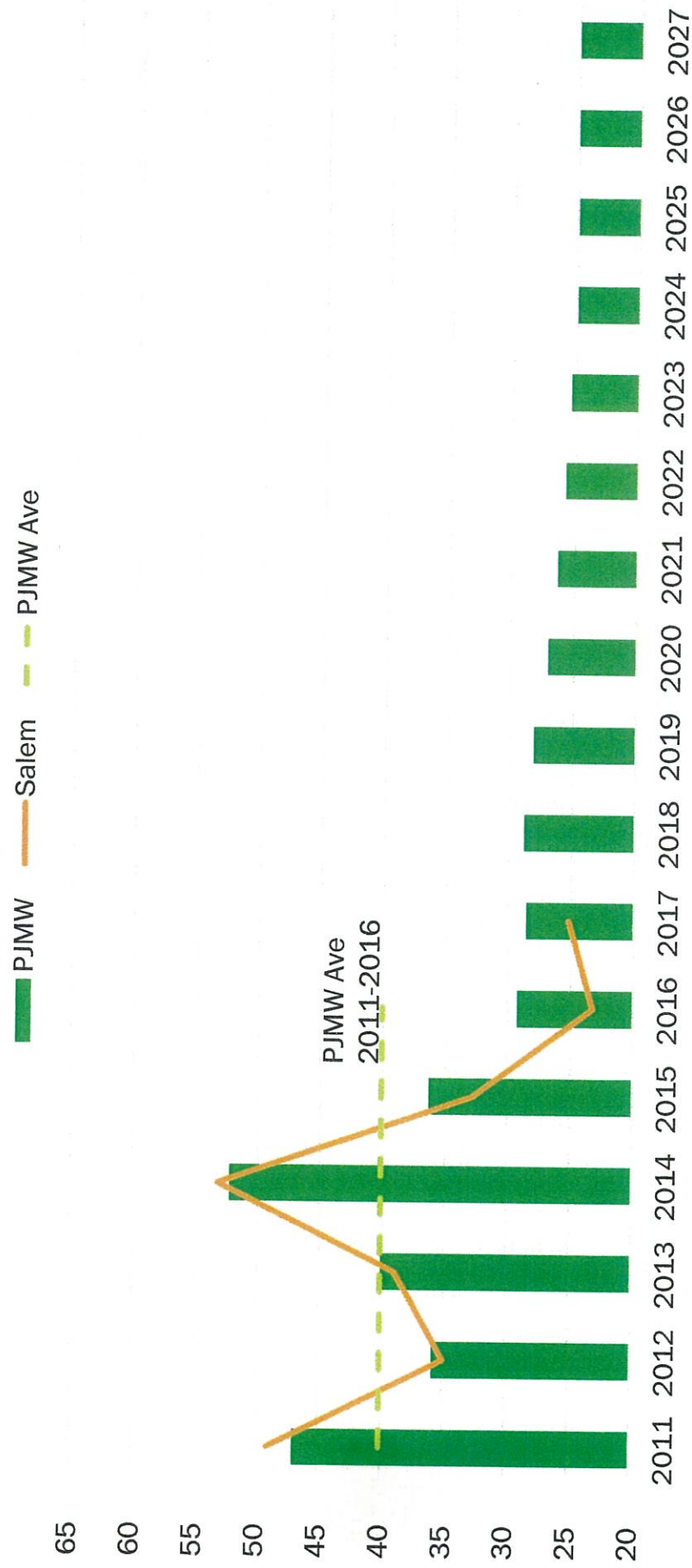
Conclusion

I ask you to support the passage of this legislation which is vital to maintaining these zero emission nuclear resources critical to ensuring a fuel diverse, affordable and resilient bulk power grid in New Jersey.

Available Energy Prices at Salem and Hope Creek

- The PJM Market Monitor acknowledges that in 2016 each of the units at Hope Creek and Salem “fell short of covering its annual avoidable costs.” Testimony of Joseph Bowring before the New Jersey Senate Environment and Energy Committee, p. 4, December 4, 2017.

Annual Average Day-ahead Price (\$2016/MWh)

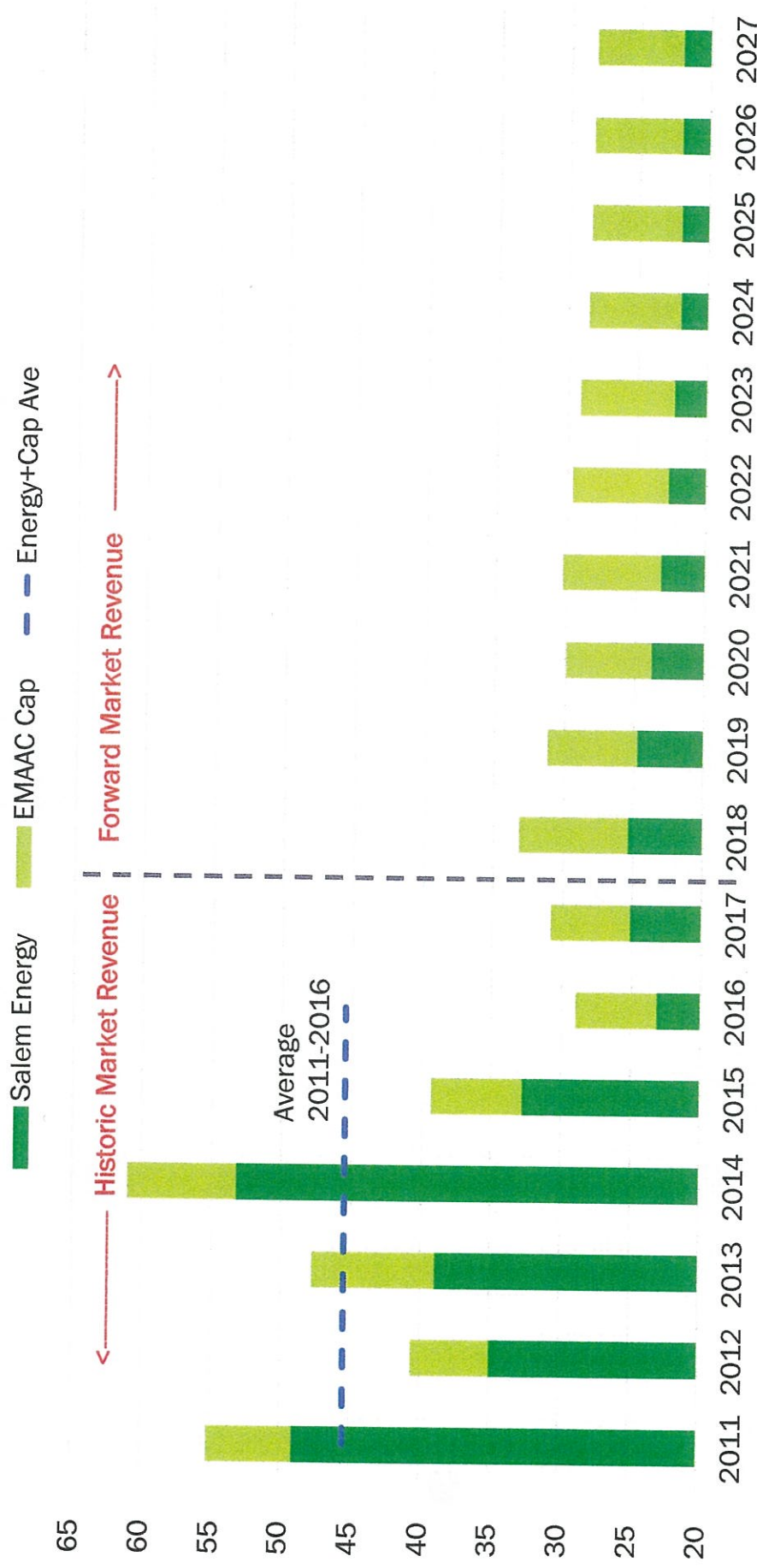


*Source: <http://dataminer2.pjm.com/list>; PJMW futures on 12/14/17 from the ICE.com
 Note: 2017 annual average LMP is (1/1/17 - 12/17/17)

Total Available Market Revenue is Insufficient to Cover Operating Costs Plus Business Risks

- Forward energy and capacity revenues are far lower than the 2011-2016 average used by the IMM in its economic analysis. Simply put, historic revenues are irrelevant to the retirement decisions.

Salem Annual Average Market Revenue (\$2016/MWh)

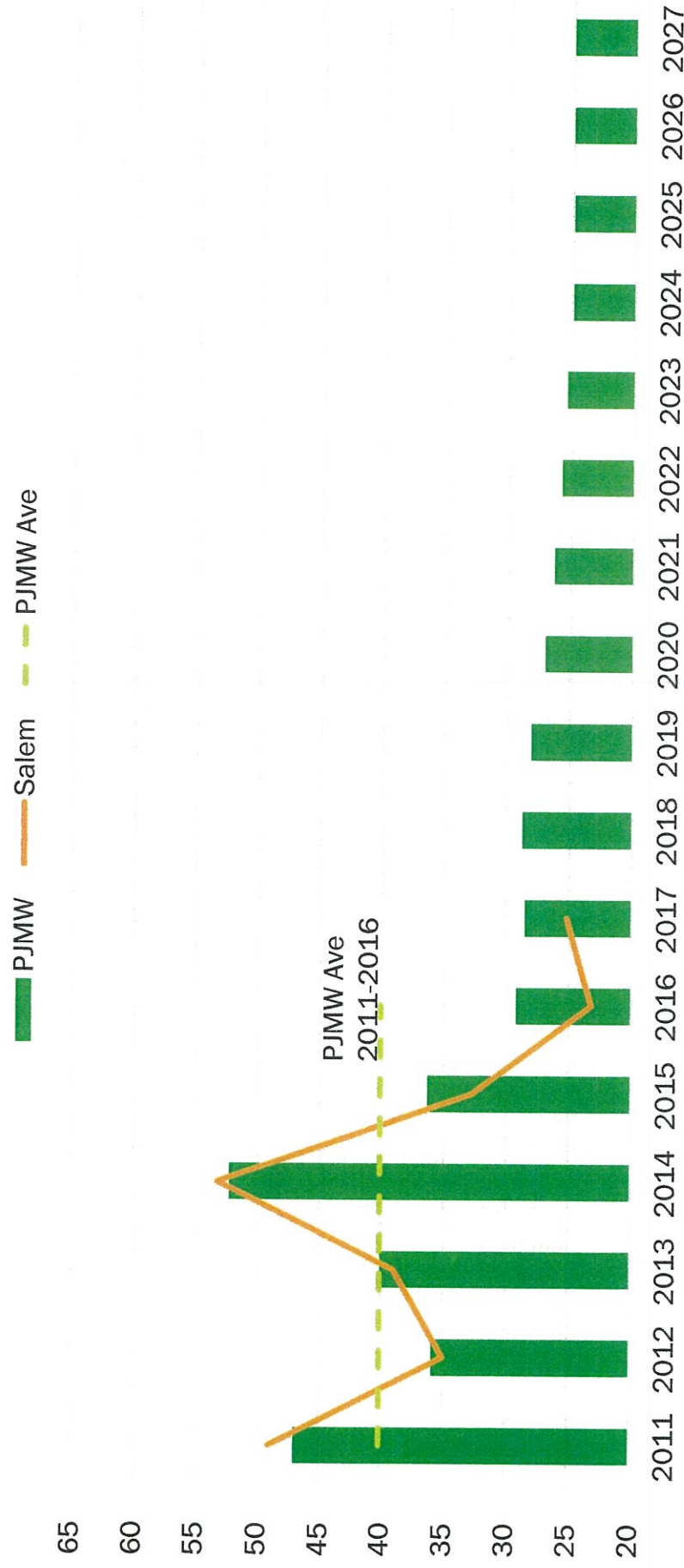


*Source: <http://dataminer2.pjm.com/list>; PJMW futures on 12/14/17 from the ICE.com; Basis for 2018-2027 = 2017; Capacity price assumed flat after 20/21
 Note: 2017 annual average LMP is (1/1/17 - 12/17/17)

Available Energy Prices at Salem and Hope Creek

- The PJM Market Monitor acknowledges that in 2016 each of the units at Hope Creek and Salem “fell short of covering its annual avoidable costs.” Testimony of Joseph Bowring before the New Jersey Senate Environment and Energy Committee, p. 4, December 4, 2017.

Annual Average Day-ahead Price (\$2016/MWh)



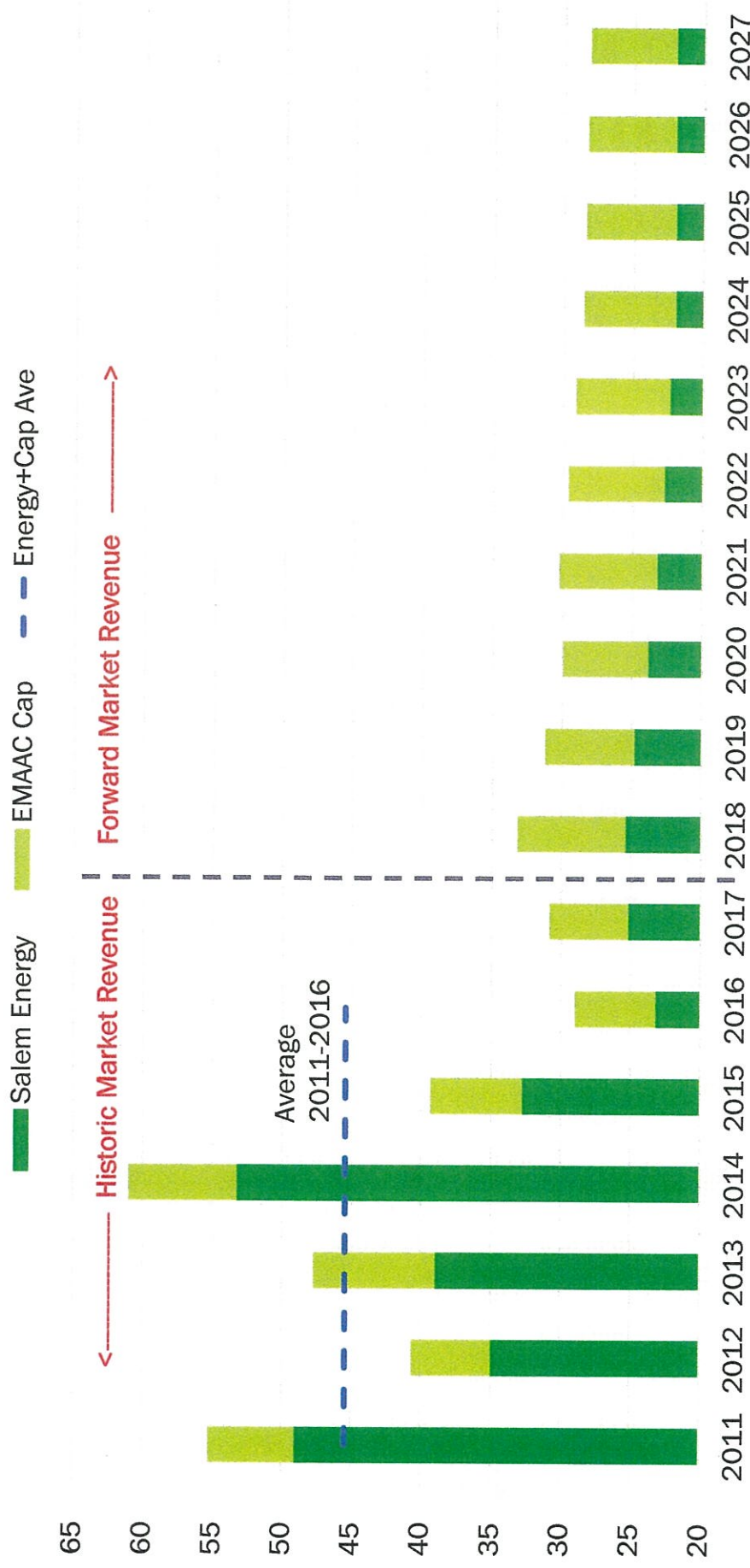
*Source: <http://dataminer2.pjm.com/list>; PJMW futures on 12/14/17 from the ICE.com
 Note: 2017 annual average LMP is (1/1/17 - 12/17/17)

90x

Total Available Market Revenue is Insufficient to Cover Operating Costs Plus Business Risks

- Forward energy and capacity revenues are far lower than the 2011-2016 average used by the IMM in its economic analysis. Simply put, historic revenues are irrelevant to the retirement decisions.

Salem Annual Average Market Revenue (\$2016/MWh)



*Source: <http://dataminer2.pjm.com/list>; PJMW futures on 12/14/17 from the ICE.com; Basis for 2018-2027 = 2017; Capacity price assumed flat after 20/21
 Note: 2017 annual average LMP is (1/1/17 - 12/17/17)

JOSH UNRUH
VERNON, VERMONT SELECTBOARD CHAIRMAN
TESTIMONY FOR THE RECORD
JOINT HEARING OF THE SENATE ENVIRONMENT & ENERGY COMMITTEE AND ASSEMBLY
TELECOMMUNICATIONS & UTILITIES COMMITTEE
DECEMBER 20, 2017

Good morning Chairman and members of the committee,

My name is Josh Unruh, and I am the current Vernon, Vermont Selectboard Chairman. For years I have lived, worked, and raised my family in Vernon, Vermont.

Vernon, Vermont is a tight knit community of about 2,200 people and until several years ago, the home of the Vermont Yankee Nuclear Power Plant.

When the Vermont Yankee Nuclear Power Plant began commercial operation in 1972, our town grew around it. New homes were built, new businesses opened, families grew, and a mutually beneficial partnership was forged between the nuclear industry and residents.

As the largest employer in the region, Vermont Yankee employees were an important part of our community and the communities surrounding Vernon. Our neighbors and friends made Vermont Yankee a safe and reliable energy source for our community for over 40 years.

With the help of Vermont Yankee, our town grew into a beautiful place to live and raise a family, with an excellent school, reliable infrastructure, and some of the best municipal facilities in our region. Vermont Yankee helped define our community by providing good paying jobs, stable employment, and acting as a responsible and involved corporate neighbor. Local businesses as well as non-profit groups benefited from Vermont Yankee's support and its employees' activity in the community. Vermont Yankee never failed to carry out on its promise to give back to the community by doing business locally and providing significant revenues to small businesses throughout the region.

However, when Vermont Yankee closed, the cornerstone of our local community disappeared, causing families and friends to move away, and in turn, our businesses shuttered and many community members were left searching for jobs. About 300 million dollars a year no longer circulates in Vermont's economy due to the plant shutdown. Sadly, our small businesses are feeling that crunch the most, with reports as high as 20% in lost revenues. In addition, \$58 million in payroll per year is no longer paid to the over 500 people Vermont Yankee once employed.

This money no longer supports the town of Vernon, the community's small businesses, and the many non-profits around the region that relied on Vermont Yankee. Programs that serve our youngest population have been greatly reduced or eliminated, and services for our elderly population are at risk. The engine that drove our community died, and our town and region have slowed to a halt because of it.

Residents regretfully voted NOT to fund any of the social services that traditionally aided our most at-risk population. Financial pressures in the face of rising taxes have forced residents to make difficult choices in order to make ends meet. Our only local retail store has closed, housing values have plummeted, and taxes are expected to continue to increase. Residents have been forced to fill the financial gap in order to maintain minimum town services. Increases in property taxes and declining

home values have placed a significant burden on those members of our community that can least afford it.

The impact has been more than financial. When Vermont Yankee closed, families moved or were torn apart when houses couldn't sell and some parents were forced to find work at other plants – only able to come home on the weekends, if they are lucky. Our friends were scattered to other states when the cornerstone of our economy disappeared. The culture and identity of our town will be forever changed.

And our town has not been the only one affected by the closing of Vermont Yankee. A tri-county region that includes Massachusetts and New Hampshire has suffered the loss of business, support and employment. In the absence of political and legal battles, it is conceivable that the plant could have continued operations well into the future. It could have continued to provide good paying jobs, it could have continued to support local services and projects and it could have continued to provide safe, reliable and affordable energy for New England.

Still, Vernon is a proud community, with our backbone in electric generation and agriculture. We were a thriving town before Vermont Yankee and will continue to endure after it's decommissioning, but we will never be the same. If we could build a new nuclear plant and bring our families and friends back to Vernon, we would do it in a heartbeat. In turn we would be able to bring back clean reliable energy and ensure stability to our economy and our power grid.

The fate of Vernon does not have to be the fate of communities here in New Jersey. As you consider your state and the future of New Jersey's nuclear plants, remember what happened in Vernon, Vermont. While our town cannot turn back the clock, we urge you to learn from our experience, and do what is best for your communities.

Jennifer Tutterow
Legislative Testimony
December 18, 2017

My name is Jennifer Tutterow, and I am an engineer at the Salem Nuclear Plant.

There are a lot of people here today offering you their opinions on what this legislation is about. As one of the 1,500 employees who work at Salem and Hope Creek, I'm here today to tell you this legislation is about more than nuclear power – it's about people like me.

For the past several years, New Jersey has tried to stop the millennial brain drain and keep young professionals like me from leaving. I'm proud to say I grew up in Jackson and after realizing my knack for chemistry and math, pursued a Chemical Engineering degree from Rowan University.

My career started with an internship at PSEG. I knew nuclear power was the right career for me – I completed a second internship and was hired full-time after graduating from Rowan.

Over the past six years, I have learned so much. Most important, I have met so many great people. They're more than just my co-workers – they're my friends and family.

As many of you know, the nuclear industry is facing increasing financial challenges across the country. Now, it's happening right here in New Jersey. What would you do if you heard rumors that your employer might shut the doors and go out of business?

As someone who is about to start a family, it's very concerning. Many of my co-workers – my friends – couldn't deal with this uncertainty. We've lost too many good people over the past two years - many to opportunities outside of New Jersey. This is your chance to stop good, well paying jobs, and more importantly good people, from leaving the state.

The proposed legislation is a safety net that provides certainty and support to employees like me. It also ensures that young people like me – who wanted a career in STEM – have options available to them in New Jersey.

At PSEG, we're more than just employees. We're mentors for so many kids in our communities.

Ever since my internships I have been active with our STEM outreach. I've been fortunate to have interacted with several hundred students – our future scientists and leaders. I've judged dozens of science fairs throughout the state and helped more than a thousand scouts earn the elusive Nuclear Science Merit badge.

But what happens to our STEM programs and these students if the nuclear plants aren't there anymore? Again, this legislation is about more than nuclear power.

This legislation is about our employees. It's about stopping the millennial brain drain now and for future generations.

It's about a local community that relies on PSEG so much. From the schools to the mom-and-pop small business, we touch all of them.

We need your support. New Jersey Needs Nuclear. We need you to support this legislation.

Thank you.



Testimony of Dennis Hart on S3560/A5330

Executive Director

Chemistry Council of NJ

December 20, 2017

Good Morning Chairman Smith and Chairman DeAngelo and committee members. Thank you for giving me the opportunity to testify today. My name is Dennis Hart and I am the Executive Director of the Chemistry Council of New Jersey and we are a member of NJCANT, the New Jersey Coalition against Nuclear Taxes. Chemical and Pharmaceutical manufacturing, at \$21.7 Billion, is the second largest industry in New Jersey. The industry employs over 49,000 direct employees and 27,000 indirect jobs and invests over \$650 million each year in equipment and facilities and contributes hundreds of millions of dollars each year in federal, state and local property taxes. The chemical and pharmaceutical manufacturing business is very important to New Jersey's economic well-being but for a whole host of reasons it is getting more and more difficult for companies to justify building new facilities in New Jersey or investing in expansions of the existing sights. One of those reasons is the high cost of electricity. New Jersey's industries currently pay on average 54% higher energy bills than the national average. For a manufacturer making energy intensive products, the price of energy can account for up to 85% of its total production costs. New Jersey's high energy costs continue to have a substantial impact on a company's bottom line. Increasing the already high energy bills with nothing to show for it will only hasten the decline in investments in New Jersey. Recognizing the importance of manufacturing to our state's economy the legislature recently formed the Manufacturing Caucus. In his announcement of the creation of the caucus Senate President Sweeney stated that "the caucus will be tasked with developing legislation and strategies to make New Jersey more competitive for manufacturers to expand and locate their operations in New Jersey and will be seeking to advance important policies to improve New Jersey's economic competitiveness."

96x

S3560/A5330 which will force all individual taxpayers and all industries to pay a substantial tax increase to PSEG and Exelon will absolutely lead to less investments and the loss of good jobs in New Jersey, both union and non-union jobs. This is in direct conflict to the goals of the manufacturing caucus. Chemical and pharmaceutical manufacturing facilities are where men and women from our vo-tech schools, county colleges and high schools can be trained and hold high paying, skilled jobs the exact jobs the legislature is looking to encourage. Enactment of this unnecessary tax will lead to job cuts to pay for this unwarranted tax increase. As discussed before, it is difficult for New Jersey manufacturing companies to compete with companies around the country, even their sister companies. With the construction of the new High Voltage Transmission lines from the PSEG/Exelon units at Artificial Island to Delaware this will mean even more of the power generated at this site will go out of state with out of state residents and competing companies not being subject to the subsidy payments. How is this going to encourage job growth in New Jersey?

We do not oppose nuclear power but due to the negative impact this tax will have on manufacturing in New Jersey we oppose this massive tax for the following reasons:

- PSEG/Exelon has failed to provide one piece of evidence, one spreadsheet or one financial analysis to actually prove that these plants will be losing money. **At the legislature's December 4th hearing PSEG Chairman Ralph Izzo was discussing the formation of electric prices and he said, and I quote "I could talk about how prices are set and about price formation but I wouldn't want to bore you with the details." He didn't want to bore you with the details of how prices are set? Really? He should be asked to bore everyone with details, any details, even one detail. They have not given you one useful piece of information to justify that these plants are at risk of closing. They haven't even told you what their target per cent earnings number is that will satisfy them and satisfy the dividend estimates that they provide to investors.**

- This bill does not define what being profitable means. It does not define which operating costs are acceptable to include in the expense side of the ledger. This bill turns these decisions over to BPU who is not used to regulating private, non-regulated companies and forces them to define costs and revenues. There are no limitations on what capital, operating, management or any other expenses are acceptable to use in their calculations. In short, BPU does not have the experience or the time to fully evaluate all of the plants that will be applying for these credits, it could be more than just the Salem nuclear plants. Under this legislation Oyster Creek will apply and possibly out of state companies could apply.
- There is no urgent emergency that needs to be address in this three week period. The issue of evaluating and pricing-in the advantages of nuclear energy is a regional issue needing regional solutions and in fact:
 - PJM recognized this and awarded substantially higher electricity price capacity payments to PSEG/Exelon this year during the 2021 auction. PJM has written to you requesting that you not take this drastic action because it will so disrupt their energy market.
 - The Federal Energy Regulatory Commission has proposed rules and has taken public comments on this very same topic in hopes to advance a national solution which will treat all rate payers in the country fairly.
 - There are no clear and specific definitions of profits and expenses in this legislation and the language in the bill is not strong enough to prevent PSEG/Exelon from earning taxpayer subsidies at the same time they are profitable.
 - Mr. Izzo stated that the plants will be profitable for at least the next two years and they are committed to provide electricity into the PJM market through 2021.
 - Governor Elect Murphy stated during his campaign that his admisitration will have New Jersey reenter the Regional Greenhouse Initiative.
- I have heard that PSEG is telling you that the increases in electric bills brought on by this legislation are a minor percent increase in our overall

electric bills. The comparison of percentage increases in electric bills is not legitimate. Just as comparing percentage increases in salaries is not relevant. If Ralph Izzo and I both receive a 2 per cent increase in our salary I can assure you the deference in actual dollars is not a minor increase.

In August of 2016 NJ Spotlight ran an article about the NY State approval of nuclear credits. The article discussed that between 10 to 15 nuclear power plants were at risk of closing in the near future. I repeat, the discussion is about At Risk nuclear power plants! The article went on to say that it is an issue Public Service Enterprise Group is trying to raise, but it faces a bigger hurdle in getting policy makers' attention. Let me quote from the article:

"PSEG CEO and President Ralph Izzo acknowledged as much during an earning call with analysts last week. For one thing, PSEG's plants are profitable, unlike their counterparts in New York and other states, Izzo conceded. "It does impair our ability to have the same level of interest and participation in the discussion," he said, when asked about prospects for similar incentives in New Jersey."

In closing, there is no eminent situation that should cause them to put you in the unenviable position of deciding between giving billions of taxpayers' dollars to PSEG/Exelon in exchange for not closing the plants and putting their employees out of work. This is not fair to you, not fair to the taxpayers and extremely not fair to use the lives of the hard working employees at the Salem Nuclear Plants who are being used as pawns.

The chemical and pharmaceutical manufacturing industries in New Jersey agree that NJ needs a reliable and resilient source of energy production. We do not favor one source of energy generation over another and we recognize the important place nuclear power has in overall energy and environmental goals. As you discuss the taxpayer funded bailouts of nuclear plants approved in Illinois and New York you must remember that those subsidies are being provided for plants that are aging and non-competitive. PSEG's three plants don't meet either of these criteria. PSEG has stated that they have improved the efficiencies of these plants to their highest levels. These are well run, efficient and profitable plants. So what are we really talking about? PSEG's CEO has discussed that in three years the plants will not be "Earning the Cost of Capital". Those are his words. Earning the Cost of

Capital means that they can make more money investing in other ventures than they can make running the nuclear plants. That doesn't mean that they are losing money on the nuclear plants. It means that they are not making as much money as they would like to make as returns to the Wall Street Investors. So, under the guise of impacts on reliability and impacts on renewable goals and difficulty operating in a competitive energy environment without any verified financial reports the taxpayers of New Jersey are being asked to shell out billions of dollars to be passed through to investors.

A matter like this which is of monumental significance to New Jersey's economy, energy and environmental future should not be rushed through without a thorough evaluation of all of the issues and the financial condition of the company. We could end up in a situation like the State of Illinois taxpayers now find themselves whereby they are required to pay the subsidies even when the plants are profitable and don't need the subsidy. The State of Connecticut recently enacted legislation to address this situation. The Connecticut State Legislature and Governor agreed to provide subsidies to a nuclear plant provided that the company can legitimately demonstrate the financial need. As this debate goes forward we should do no less than have a clear an open review of the financial situation of the company prior to demanding that taxpayers turn over billions of dollars to PSEG and Exelon.

NJ CANT

Coalition Against Nuclear Taxes

PSEG didn't think an energy tax to subsidize an energy company was a good idea in 2011. So why are they supporting an energy tax to subsidize an energy company six years later?

PSEG in 2011: Opposed Energy Tax To Subsidize Power Plants

PSEG Press Release (Jan. 6, 2011): Warns Energy Tax to Subsidize Power Plants (A3442) Will Cost New Jersey Residents and Businesses
"This is essentially an energy tax that will cost New Jersey residential and business customers more than a billion dollars," said **Anne Hoskins, Senior Vice President, Public Affairs and Sustainability, PSEG.**

"Customers have been put through this before with disastrous results for customers," Hoskins warned. In the 1970's, government required New Jersey's utilities to enter into long-term contracts with power generators and set prices and production targets for the energy industry. That resulted in billions of dollars in excess payments by consumers. Over the next six years, PSE&G customers alone will pay more than \$1 billion for the remaining costs of these long-term contracts.

"The resulting customer surcharges will have long-term impacts," Hoskins said. "Subsidies are a slippery slope and will drive away other non-subsidized private investment in New Jersey.

"Supporters of A3442 hope to create jobs, but real jobs will be lost in the process," said Hoskins. "Subsidized generation will replace non-subsidized generation and threaten hundreds of existing jobs."

PSEG in 2017: Wants Energy Tax To Subsidize Its Nuclear Plants

NorthJersey.com: PSEG wants rate increase to subsidize nuclear power

"Without intervention — without a thoughtful, economic safety net — PSEG will be forced to close its New Jersey nuclear plants," **Ralph Izzo**, the company's president and chief executive, told members of the Senate and Assembly utilities committees. "If that happens, New Jersey will be able to purchase the electricity it needs. The lights will stay on. But the impact on New Jersey will be negative in almost every way."

NJ101.5FM: PSEG warns more nuclear plants may close without more government help

PSEG spokesman Paul Rosengren: "There is a real risk that these plants will stop being cash positive, which means that they will be losing money if there is no long term hope for the price to either go up, or for some other form of compensation for some attributes that nuclear power bring then you can't keep these plants running."

NJSPOTLIGHT.com: LAWMAKERS START TO HASH OUT GRANTING NUCLEAR SUBSIDIES TO PSEG

PSEG Chairman, President and CEO Ralph Izzo once again threatened to close the units if the state does not intervene to provide the plants with a "safety net," but just what that would entail was left unsaid.

TODAY: RUTGERS/EAGLETON POLL

ENERGY COSTS

72%

New Jerseyans worried about the cost of electric bills going up.

NUCLEAR TAX

75%

New Jerseyans are NOT interested in subsidizing already profitable nuclear power companies.

TRANSPARENT PROCESS

69%

New Jerseyans want a public assessment to determine need of PSEG subsidy, before NJ approves tax to pay for it.



Estimated Impact of S3560/A5330 (*Establishes Nuclear Diversity Certificate program*) on Chemistry Council of New Jersey's Manufacturing Members:
\$8,000 - \$320,000 per year.

Proposed Nuclear Tax Rate: \$.004/kilowatt hour

Sites*	Additional Cost**			
	Per Year	Per Month	Per Week	Per Day
Small single site (2,000,000 kWh/year)	\$8,000	\$666.66	\$153.85	\$21.92
Small multiple sites (10,000,000 kWh/year)	\$40,000	\$3,333.33	\$769.23	\$109.58
Medium (20,000,000 kWh/year)	\$80,000	\$6,666.66	\$1538.46	\$219.18
Large single site (40,000,000 kWh annually)	\$160,000	\$13,333	\$3076.92	\$438.36
Large multiple sites (80,000,000 kWh annually)	\$320,000	\$26,666.66	\$6153.85	\$876.71

*Average energy profile of current CCNJ member companies participating in the CCNJ Energy Aggregation Program in 2016/2017.

Chemistry Manufacturing Members:

Air Liquide Advanced Materials
 Alpha Associates, Inc.
 Ashland Inc.
 BASF Corporation
 Bristol-Myers Squibb Company
 CSPA
 Chemours
 Church & Dwight Co., Inc.
 Clean Earth Inc.
 COIM USA, Inc.
 Croda Inc.
 DSM Nutritional Products, LLC
 DuPont
 Energy Transfer Partners
 Evonik Corporation
 ExxonMobil
 FMC Corporation
 Givaudan Flavors Corp.

Graver Technologies, LLC
 Hoffmann-La Roche, Inc.
 Honeywell International Inc.
 INDA (Assoc. for Nonwoven Fabrics Industry)
 Infineum USA L.P.
 International Flavors & Fragrances Inc.
 Johnson & Johnson
 Johnson Matthey Inc.
 Kinder Morgan Liquids Terminals, LLC
 Kuehne Company
 Lanxess
 Linde North America
 Lubrizol Corporation
 LyondellBasell Industries
 Mannington
 Merck & Co., Inc.
 Mexichem Specialty Resins
 Mohawk Labs

Monsanto Company
 Oxy Vinyls
 Paulsboro Refining Company LLC
 Pfizer Inc.
 Phillips 66 Company
 Procter & Gamble Company
 Reckitt Benckiser, LLC
 Siegfried USA LLC
 Solvay
 Stepan Company
 The Dow Chemical Company
 Thermo Fisher Scientific-Global Chemicals
 Troy Corporation
 Valtris Specialty Chemicals
 Veolia Environmental Services
 W.R. Grace & Co.

Joel E Givner
J Givoo Consultants Inc.

My name is Joel E.Givner. I am employed by J. Givoo Consultants Inc., a New Jersey Woman Business Enterprise, certified by the States of New Jersey, New York and California and NY/NJ Port Authority. I have a Bachelor of Science degree in Physics (1975) and a Masters of Science degree in Nuclear Science (1977). I have been a strong proponent of Nuclear Power for my entire working career.

In 1989, our Company received its first contract with PSEG to perform Instrumentation and Control Services during the first Refuel outage for Hope Creek. We were tasked to provide 60 Union affiliated Instrumentation and Controls technicians to support maintenance activities. For the next 28 years, through direct contracts with PSEG or subcontracts with the PSEG Nuclear Major Maintenance contractors, we have performed Union Instrumentation and Controls staff augmentation services for Salem Units 1 and 2 and also Hope Creek Nuclear Station mainly during their refuel outages. We are presently performing work under a 5 year Master Services Agreement with PSEG.

Refuel outages between the three Units are staggered so there are two planned outages every year. Presently, we typically employ between forty(40) and forty five(45) Union affiliated Instrumentation and Controls Technicians with either a IBEW (International Brotherhood of Electrical Workers) or UA (United Association of Pipefitters and Plumbers) affiliation for each outage and also have a team of five (5) Union affiliated Instrumentation and Controls technicians full time which review, walk down and plan for the upcoming outages.

Our Company works closely with IBEW local 351, UA local 322 and PSEG Nuclear to insure that we are able to provide the best qualified, experienced and highly skilled Instrumentation and Controls technicians to perform over 1000 Work order activities in a very short 21 to 25 day outage schedule.

The monies earned by the Instrumentation and Controls technicians during these outages, provides both the employee and businesses in the area monies which would not be possible if PSEG Nuclear plants were shut down.

PSEG Nuclear also brings additional value which cannot be measured by dollars. All Nuclear workers are trained to follow procedures developed to insure a safe work environment for both Occupational Safety and Nuclear Safety. Technical training is also provided by PSEG Nuclear. It is worthy to note that this Safe Nuclear culture can be directly used by all in their normal life outside of Nuclear Power as it is a mindset which requires thinking before acting.

From a Company perspective, J Givoo Consultants has utilized methods and processes developed by PSEG Nuclear to become a more efficient, productive and safe Company allowing us to take these lessons learned and implement them at the more than 20 additional Nuclear Power stations where we provide Instrumentation and Controls technicians.

The loss of the PSEG Nuclear Units would result in a reduction of Company revenues of between 15-20%. This would have a devastating effect which would inhibit our Company to hire additional staff and equipment purchases. It would also alter the continuity developed with our employees to be able to continue their training and provide continuous work during the Nuclear outage season.

I am very proud to be part of a Company doing business with PSEG Nuclear. As stated above, our Company performs Instrumentation and Controls Services with more than 20 additional Nuclear Power stations. I can state without a doubt based on experience at the other stations, that PSEG Nuclear ranks at the top to provide a workforce environment which stresses Safety, Efficiency, Productivity and Human Performance. This is why PSEG Nuclear has high industry INPO ratings and ranks at the very top of all the Nuclear Stations in the continental US.

Testimony of the PJM Power Providers Group (P3)
Joint Meeting of The New Jersey Senate Environment and Energy Committee
and the New Jersey Assembly Telecommunications and Utilities Committee

December 20, 2017

The PJM Power Providers Group ("P3")¹ is a non-profit organization made up of power providers whose mission is to promote properly designed and well-functioning competitive wholesale electricity markets in the 13-state region and the District of Columbia served by PJM Interconnection. Combined, P3 members own more than 84,000 megawatts of generation assets in PJM, produce enough power to supply over 20 million homes and employ over 40,000 people.

P3 is opposed to NJ Senate Bill No. S3560 and NJ Assembly Bill No. A5330. If adopted as law, these bills would implement a costly system of subsidies paid for by New Jersey residents and businesses. These bills are vague in that they lack the simplest of procedural protections and transparent review to ensure that select nuclear facility owners are not enriched at the expense of New Jersey consumers because of undisclosed revenue shortfalls. Confidentiality of expenses and revenues is a privilege that is reserved for participants in competitive procurement processes, not for businesses that are seeking handouts from consumers. At a minimum, the information should be made a part of a public regulatory process and subject to the challenges of experts and the offerings of competitive providers. Anything less is guaranteed to burden the consumers of New Jersey with needless higher costs.

Despite reports to the contrary, PJM's markets are working well for New Jersey. Power prices in New Jersey are at historic lows, reliability is high, air emissions have plummeted and the generation mix is as diverse as it has ever been. That is not to say that the markets are perfect (they are not) and that there are no issues that need to be addressed (there are). Fortunately, both the Federal Energy Regulatory Commission ("FERC") and the PJM Interconnection, LLC ("PJM") are working hard to address those concerns.

P3 firmly believes that subsidies to specific resources undermine the very benefits of competitive markets. Subsidies distort markets and are contagious. Consumers lose as subsidies invariably

¹ The views expressed in this testimony are those of P3 as an organization and do not necessarily reflect the view of any individual P3 member with respect to any issue. For more information on P3, see www.p3powergroup.com.

drive up the price of power for all as generators compete to get the best subsidy, rather than producing the most reliable and efficient power.

P3 members compete against each other to provide New Jersey consumers the power they need at the prices they want. They invest billions of dollars with the hope and expectation that they will be able to fairly compete. Fair competition provides tremendous benefits to consumers, including allowing them to receive the highest level of service for the lowest price. Subsidies are destructive to fair competition, harming consumers.

Efforts to interfere with the power markets are nothing new for New Jersey. Seven years ago, New Jersey was embroiled in a fierce debate about whether New Jersey ratepayers should provide a subsidy to build new gas-fired power plants in the state. Predictably, the beneficiaries from the subsidy spoke loudly about all the wonderful benefits to New Jersey. Jobs would be created, tax bases would increase, the lights would stay on, air quality would improve and prices would go down.

In January of 2011, New Jersey adopted a law to create the long-term capacity agreement pilot program ('LCAPP'). New Jersey legislators and residents were told that wholesale electricity markets were broken and without LCAPP subsidies, new power plants would never be built in the Garden State and New Jersey's homes and businesses would be forced to pay higher electricity bills to import power. LCAPP allowed the Board of Public Utilities to approve 15-year contracts for new generation facilities in New Jersey that would be paid for by New Jersey ratepayers.

With the benefit of hindsight, the problem of LCAPP becomes glaringly apparent:

- **LCAPP was unconstitutional.** Three different courts, including the United States Supreme Court, found that the law unconstitutionally interfered with the regional wholesale power markets that are regulated by FERC. New Jersey spent significant public money defending the law and ultimately lost. Fortunately for New Jersey's ratepayers, as a result of this litigation, electricity bills never were forced to fund the misguided LCAPP program.
- **LCAPP was unnecessary.** The New Jersey Board of Public Utilities approved three plants to receive LCAPP subsidies: Woodbridge Energy Center, Newark Energy Center and the Old Bridge Clean Energy Center. Both Woodbridge and Newark have been built and are currently operating – *without a subsidy*. In addition, the West Deptford Power Station was constructed and came on line in 2014 without the benefit of any subsidies (and a second plant has been permitted on the site). PSEG is also building a new natural gas-fired plant in Sewaren. Indeed, New Jersey is awash in new power generation

capacity that 8 years ago many advocates said would never be built absent state interference in the marketplace.

- **LCAPP was a bad deal.** It is possible to calculate how much more New Jersey consumers would be paying for electricity had LCAPP been legal and implemented. At the time, many in New Jersey thought power prices would go up and New Jersey ratepayers would actually be receiving payments from the developers of the projects. Well, those who thought that the price of power would go up made a bad bet as prices actually dropped. Looking just at the Woodbridge plant, New Jersey ratepayers would have paid an extra \$200 million between 2016 and 2020 to support a plant that is operating economically without a subsidy. The Newark and Old Bridge projects also would have received subsidies, so the total additional cost to ratepayers would have been at least half a billion dollars by now, with many additional years still to come of excessive LCAPP costs.

P3 urges these Committees to not be fooled again. Do not buy into arguments that there is a crisis. There is not. There is a single owner of nuclear generation facilities in New Jersey saying that it owns plants that might go cash flow negative in two years. The list of owners of generation facilities in PJM that could make similar claims is enormous and not unique to nuclear assets. All generators are feeling the challenge of competitive markets in which prices are at the lowest levels in decades.

Currently, only two out of over two dozen nuclear units in PJM are proposed for retirement, Oyster Creek and Three Mile Island.² Oyster Creek, after reaching an agreement with the State of New Jersey, decided in 2010 to begin the process of shutting down. Oyster Creek is still operating today and will continue to operate until 2019. Exelon announced that Three Mile Island did not clear the PJM capacity market three years in a row – in sharp contrast to the New Jersey-based nuclear units that did clear the capacity markets and have commitments to PJM to run until 2021. The hyperbolic rhetoric that nuclear plants are shutting down in PJM simply does not square with the current facts.³

Moreover, there is a troubling assumption that all nuclear plants in New Jersey are in distress. The PJM Independent Market Monitor (“IMM”), with access to all available market data, reaches exactly the opposite conclusion:

² <http://www.pjm.com/-/media/planning/gen-retire/pending-deactivation-requests.ashx?la=en>

³ It is important to note that all of the nuclear power plant closure occurring nationally are outside the PJM footprint. Since 2013, nuclear plants have closed in Nebraska, California, Vermont, Wisconsin and Florida. No plants have close in PJM in that timeframe.

“In 2016, PJM prices were at the lowest level since the introduction of competitive markets in 1999. In 2016, PSEG’s Hope Creek plant fell short of covering its annual avoidable costs. But Hope Creek covered its annual avoidable costs on average over the last six years by a substantial margin even when 100 percent of NEI’s capital expenditures are included. Hope Creek has higher annual avoidable costs than many other nuclear plants, including Salem, because it has a less efficient one unit configuration. In 2016, the Salem plant also fell short of covering its annual avoidable costs. But the Salem plant covered its annual avoidable costs on average over the last six years by a more substantial margin than Hope Creek even when 100 percent of NEI’s capital expenditures are included. Neither plant is defined as at risk according to the criteria that the IMM applies to all units in the IMM’s annual PJM State of the Market Report. The reported results are based on public data including LMP, capacity market prices and cost data from the Nuclear Energy Institute (NEI).”⁴

The Market Monitor’s analysis points to an important fact about markets – they fluctuate. In 2011, in the context of the LCAPP debate, New Jersey was mistakenly told that new power plants would never be built in the State without a subsidy. In 2017, we know that was incorrect and it is unfortunate that New Jersey had to expend so many public resources defending an unconstitutional, unnecessary and flawed law.

Today, New Jersey has an opportunity to either learn from the past or repeat a mistake. P3 urges the Committees to not rush into another energy policy mistake. Since there is no immediate crisis, the Committees should take time to learn more about this very complicated topic, to fully understand the market dynamics that are occurring in today’s markets, to appreciate the efforts that are currently underway at PJM and FERC that could improve the resiliency and reliability of electricity markets, and to develop thoughtful, informed and sound energy policy for the Garden State. P3 welcomes the opportunity to partner with the Committees in that discussion.

⁴ http://www.monitoringanalytics.com/reports/Reports/2017/IMM_Testimony_NJSEEC_20171204.pdf at 2.

Anthony M. Lowman, Ph.D.
Dean, College of Engineering, Rowan University
Testimony to the Senate Environment and Energy Committee
and the Assembly Telecommunications and Utilities Committee
December 20, 2017

Thank you for providing me the opportunity to address this Joint Committee meeting on Senate Bill 3560 and Assembly Bill 5330. My name is Tony Lowman and I am Dean of the Henry M. Rowan College of Engineering at Rowan University.

Since 2012, the Henry M. Rowan College of Engineering has experienced unprecedented growth with nearly 1,000 more students today than we had five years ago. To put our growth in perspective, our 17 graduating classes have produced over 1,800 students – just slightly more than our current enrollment. We expect to graduate nearly 350 students this spring and nearly 400 students annually in future years.

A large majority of these students are from New Jersey and have gone on to work throughout the State as well as around the region and world. It is something we can all be proud of.

Our success is not by accident. It is made possible by our close collaboration with our industrial partners in the community – one of which is PSEG. I'm proud of our partnership with PSEG and its nuclear plants. I'm even prouder of the opportunities they provide our students.

At the College of Engineering, we take great pride in how our curriculum isn't just taught in a classroom. It's taught out in the field and provides students with real world opportunities.

Each year, our students get the unique opportunity to intern at the Salem and Hope Creek nuclear plants. During the past several years, they have gained real world experience by working with the plant engineering groups on real world projects.

Even more of our students get to visit on plant tours. As part of our engineering curriculum, one of our professors brings his classroom to the plant for a visit. It's more than a discussion about nuclear power. It's the impact of meeting the employees who

work there. They are our friends and neighbors – the people who make our community successful.

Over the past five years, more than 30 of our graduates have gained employment at the Salem and Hope Creek nuclear plants. This makes PSEG's nuclear plants one of the largest employers of Rowan engineering graduates.

PSEG's support has also made a tremendous impact on STEM education and positively impacted a continuum of students from kindergarten through college.

We collaborate with PSEG to promote STEM education. As part of our community outreach, our College has two different STEM programs that would not exist without PSEG's support.

Our Attracting Women to Engineering program has encouraged more than 2,000 middle school girls over the past 19 years to consider STEM careers. For these students, it's a fun filled day and an opportunity to be mentored by employees from PSEG's Women in Nuclear group. We need more young women to pursue engineering and STEM careers, and with PSEG's help we are doing that.

With support from PSEG, we host individual middle school classes in our STEM Outreach Lab during the academic year. More than 75 classes, representing nearly 2,000 middle schools have come through this program in the last five years.

In addition, PSEG hosts Rowan's Introduction for Students to Engineering program also known as RISE. This program has introduced more than 500 high school students to engineering careers the past ten years.

The Legislature has the opportunity to send a message about the important role PSEG and nuclear power play in New Jersey. I encourage you to vote in support of this legislation. Your support and support of nuclear power is a vote to support our students and their future.

Thank you.

ISSUE BRIEF

TRANSITIONING AWAY FROM UNECONOMICAL NUCLEAR POWER PLANTS

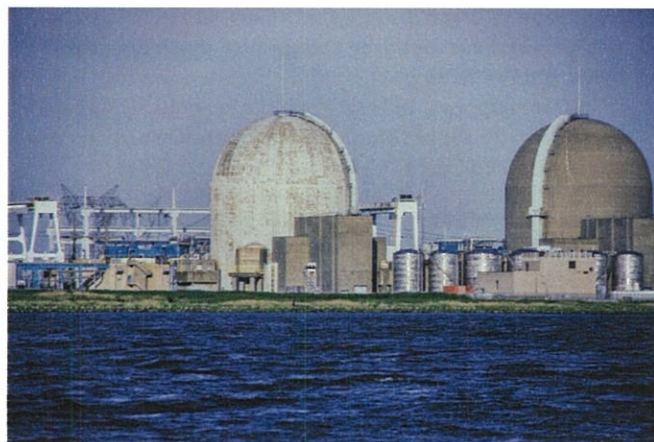
PROTECTING CONSUMERS, COMMUNITIES, WORKERS, AND THE ENVIRONMENT

Nuclear plants across the country are facing closure because they are not economically viable in competitive (and often fundamentally flawed) wholesale electricity markets. Many states are concerned about climate and other environmental impacts if nuclear power is replaced with fossil fuels, and also about the loss of jobs and the local tax base that nuclear plants provide. Some states have already developed plans for an orderly transition away from nuclear power, and others are weighing options, including direct financial support to nuclear facilities to delay closure. This issue brief outlines key environmental, economic, and fairness considerations for states seeking to manage their transition away from nuclear plants.

Experience in four states grappling with the potential closure of nuclear plants—California, New York, Illinois, and Connecticut—makes clear that any financial support should be predicated on a showing of financial distress and should be narrowly tailored to market conditions. Policymakers should also tie such support to a time-limited transition plan to address a state's specific concerns, for example by simultaneously adopting state policies that will drive investment in the emissions-free energy efficiency and renewable energy needed to replace the plant; by requiring the plant owner to retain, retrain, and/or compensate its workforce; and by supporting an alternative economic development plan for communities that rely on nuclear plants for a substantial portion of their tax revenues.

BEST PRACTICES FOR NUCLEAR TRANSITIONS

As America's nuclear plants age, reach the end of licenses or license extensions, or become increasingly uneconomical in today's wholesale electricity markets, growing numbers of reactors are likely to be retired. A well-planned, systematic transition is critical to: ensuring that clean, renewable and more cost-effective alternatives replace the plants; that carbon emissions do not increase; and to avoiding detrimental impacts to workers and to host communities that rely on nuclear facilities for their tax base. Short-term, narrowly tailored financial support for existing nuclear facilities that demonstrate severe financial distress may make sense in some cases, provided it is tied to robust efforts to ensure an orderly transition.



California, New York, Illinois, and Connecticut have taken steps to avoid the abrupt closure of nuclear plants; New York and Illinois provide direct financial support for the plants and Connecticut has authorized such support. The states developed these policies for a variety of reasons, including avoiding backsliding on efforts to meet state greenhouse gas reduction goals, protecting jobs, and preserving an important source of tax revenue for local communities. Their experience reveals the following best practices for transitioning away from nuclear power:

- Showing of severe financial distress. Financial support for a nuclear facility may be warranted if the owner can

demonstrate that it will close the plant absent such support; reduced profitability is not sufficient. In New York and Illinois, plant owners filed notice of closure and opened their books to state regulators. In Connecticut, the plant owner made no such disclosure; as a result, the state agency conducted its own analysis based on publicly available information, determined the plant was profitable, and refused to authorize financial support.¹

- **Narrowly tailored support.** The financial support needed to extend operation of a plant depends on wholesale electricity market prices, as well as any carbon price, and should be adjusted accordingly in order to avoid a windfall to shareholders at the expense of consumers. New York has a mechanism to adjust the value of nuclear subsidies biannually to reflect wholesale market and carbon price fluctuations; Illinois, which does not currently cap carbon emissions, adjusts its nuclear subsidy to reflect wholesale market changes, ties the value of the subsidy to the Environmental Protection Agency's Social Cost of Carbon, and caps the overall cost of the subsidies.²
- **Time limits.** The purpose of subsidizing existing nuclear plants is to create the time needed to plan for an orderly transition to clean energy that takes into account the workers and surrounding community (both discussed below); there is no public policy justification for indefinite support. In New York the transition period extends to 2030; in Illinois the payments are structured as 10-year contracts.
- **Scaling energy efficiency and renewable energy.** From an environmental perspective, any justification for subsidizing existing nuclear plants is to provide the time needed to scale up clean energy (e.g. energy efficiency and renewable energy) at the magnitude and pace necessary to avoid backsliding on the reduction of carbon emissions and other pollutants and their associated public health impacts. If zero-emission nuclear facilities abruptly retire, the near- to medium-term outcome is often increased generation and emissions from nearby coal, oil, and natural gas plants.
- **Maintaining the integrity of efficiency and renewable policies.** States should not allow funds intended to drive investment in energy efficiency or renewables to be siphoned for nuclear subsidies, and nuclear generation should not "count" toward a state's renewable energy targets. This would undermine the goal of scaling up those very resources. In California, the retirement and replacement proposal (currently pending state approval) calls for additional investment in efficiency, wind, solar and other zero-carbon replacement resources. New York's utility commission adopted a "zero-emission credit" mechanism to support existing nuclear plants in conjunction with a legally binding program to scale up

renewable resources to meet 50 percent of the state's electricity demand by 2030 (nearly doubling its current renewable energy supply); nuclear generation will not count toward that target. Illinois's legislation provided more than twice the value of its nuclear support to kickstarting efficiency and renewables. In contrast, Connecticut authorized a subsidy for nuclear power as a stand-alone measure and separately made devastating cuts to its clean energy policies, siphoning clean energy funds to balance the state budget.³

- **Worker transition.** Nuclear plants typically employ several hundred to more than 1,000 people. Some employees can transition to the work of decommissioning when a plant closes, a process that can take up to 60 years. Plant owners can also transfer workers to other facilities within their companies, as Entergy is considering doing for up to 180 employees at its Palisades nuclear plant.⁴ The California proposal includes provisions for worker retention, retraining and compensation; the New York and Illinois policies do not, although the Illinois legislation does provide \$30 million for broader job-training programs and New York has an existing clean energy job-training program.⁵
- **Community transition.** Many communities with nuclear power plants rely on them for a substantial portion of their tax base. A scheduled transition provides time to develop plans to attract new businesses to the area to replace lost tax revenue. States can also provide direct support for a glide path to new economic development, as Entergy is doing in southwest Michigan,⁶ and as Massachusetts did for the towns of Somerset and Holyoke in connection with the closure of local coal plants.⁷ The California proposal includes provisions for community compensation; the New York and Illinois policies do not, although New York has a statute to provide temporary transitional tax base relief to communities that face the retirement of power plants, independent of technology type. When nuclear facilities retire, those communities may apply for such relief.⁸

STATE APPROACHES TO NUCLEAR TRANSITIONS

California

In June 2016, Pacific Gas & Electric, along with labor and environmental organizations, announced the Diablo Canyon Joint Proposal,⁹ an historic commitment to the orderly phase-out of California's last nuclear power plant by 2025 and replacement of its electric generating capacity with lower-cost, emissions-free options including energy efficiency, and wind and solar power. Under the terms of the proposal, currently pending approval by the California Public Utility Commission, the plant will continue to operate for nine years. Had the two reactors been relicensed, they could have operated an additional 29 to 49 years.

Due to its enormous size and lack of flexibility in operation, Diablo Canyon increasingly is an obstacle to adding clean generation and displacing natural gas, which also adds to greenhouse gas emissions. Removing Diablo Canyon will open space for new, less costly renewable resources, and increased generation from renewables already on the system. In addition, Diablo Canyon is located near earthquake fault lines; by shortening the life of the plant, the proposal substantially reduces the risk of catastrophic earthquake damage to an operating nuclear facility.

Diablo Canyon is a competitive resource and the Joint Proposal does not include any financial subsidy for the facility. Rather, the proposal sets out an orderly transition around the future closure of the plant in order to avoid more costly upgrades that would be required with relicensing. PG&E has estimated that costs to refurbish and operate the plant would more than double to above 10 cents per kilowatt-hour (kWh) after 2025, and that a portfolio of energy efficiency, renewable energy, and other zero-carbon measures would cost substantially less. NRDC has estimated the savings at more than \$1 billion, which exceeds the cost of the community and labor compensation that are also integral to the Joint Proposal.

New York

In August 2016, the New York Public Service Commission adopted the **Clean Energy Standard (CES)**,¹⁰ which includes a zero-emission credit (ZEC)—the first carbon emissions credit created exclusively for nuclear power. This was done to avoid the premature closure of three upstate facilities: James A. FitzPatrick Nuclear Power Plant, Ginna Nuclear Power Plant, and Nine Mile Point Nuclear Generating Station.

These plants had already been relicensed; the current licenses expire in 2034, 2029 and 2029, respectively,¹¹ providing sufficient time to develop a cost-effective plan to replace them with energy efficiency and renewable energy.

However, the New York Public Service Commission determined that the plants were at risk of abruptly retiring because they were uneconomical under current market conditions. Agency staff reviewed financial data and tax filings for the plants, which made clear that they had been in financial distress over a number of years.¹² For the near- and medium-term, closures would have led to increased generation from polluting sources like oil and natural gas because it takes time to scale up and integrate sufficient renewable resources and energy efficiency into the electric grid.

New York is in the process of implementing its CES, which requires utilities and other electricity providers to deliver 50 percent of their electricity from renewable energy sources by 2030. The ZEC program, which requires electricity providers to purchase credits from

A NOTE ON INDIAN POINT

The troubled and aging Indian Point Energy Center, a 2,000 MW two-unit facility, is not included in New York's ZEC program. The state has negotiated an agreement to shut down the facility, based in part on its close proximity to New York City—making emergency evacuation all but impossible—and the decades-long series of safety and operational problems that have plagued the plant.

Under the agreement, Indian Point's remaining Unit 2 reactor will close in 2020 and Unit 3 in 2021. The agreement does not specify a plan for replacement power, but Governor Andrew Cuomo has made a commitment that the closure will not cause an appreciable increase in carbon emissions.¹³ If New York implements a sufficiently strong energy efficiency portfolio on par with its ambitious requirement to scale up renewable energy to 50 percent by 2030, and follows through on the state's efforts to bolster the transmission grid, the governor can deliver on this commitment.¹⁴ In addition, New York is part of the nine-state Regional Greenhouse Gas Initiative, which caps carbon emissions in the power sector. The recently strengthened program requires regional emissions to decline by 3 percent annually from 2021 to 2030, on the basis of modeling that assumes the retirement of Indian Point in accordance with the agreement.

the upstate nuclear power plants until 2030, is structured as a component of the CES, but is entirely separate and distinct from the renewables program. The Public Service Commission will undertake a public biennial review of the ZEC program to make any necessary adjustments. Not a single megawatt hour of electricity generated from nuclear facilities will count toward the renewables target.

Illinois

In December 2016, the Illinois General Assembly passed the **Future Energy Jobs Act**.¹⁵ The legislation includes direct financial support for the Clinton Nuclear Generating Station and Quad Cities Nuclear Generating Station in the form of zero-emission credits, but that support is narrowly tailored. It was issued in the form of a 10-year contract, and was contingent on a showing by Exelon, the plants' owner, that the facilities were no longer economically viable. Exelon had previously filed notice with the Illinois Public Utility Commission of its intent to shutter the facility. Analysis also showed that absent this legislative package, increased generation from coal and natural gas facilities would have been required to meet the electricity demand served by the nuclear plants.

Illinois was a clean energy leader, having built the second-largest number of wind turbines in the nation in 2012, but it has not built another since then due to structural issues with its Renewable Portfolio Standard that prevented the procurement of renewables through long-term contracts.

Similarly, a recent evaluation of the state's Energy Efficiency Portfolio Standard found Illinois was failing to achieve its original policy goals by a wide margin, in large part due to a cost cap that limited utilities' spending, even if additional investments would have been cost-effective.

The 2016 legislation remedied these flaws in the state's clean energy policies and will further scale up clean energy through provisions that direct 70 percent of the value of new incentives to investment in energy efficiency and renewable energy.¹⁶

Connecticut

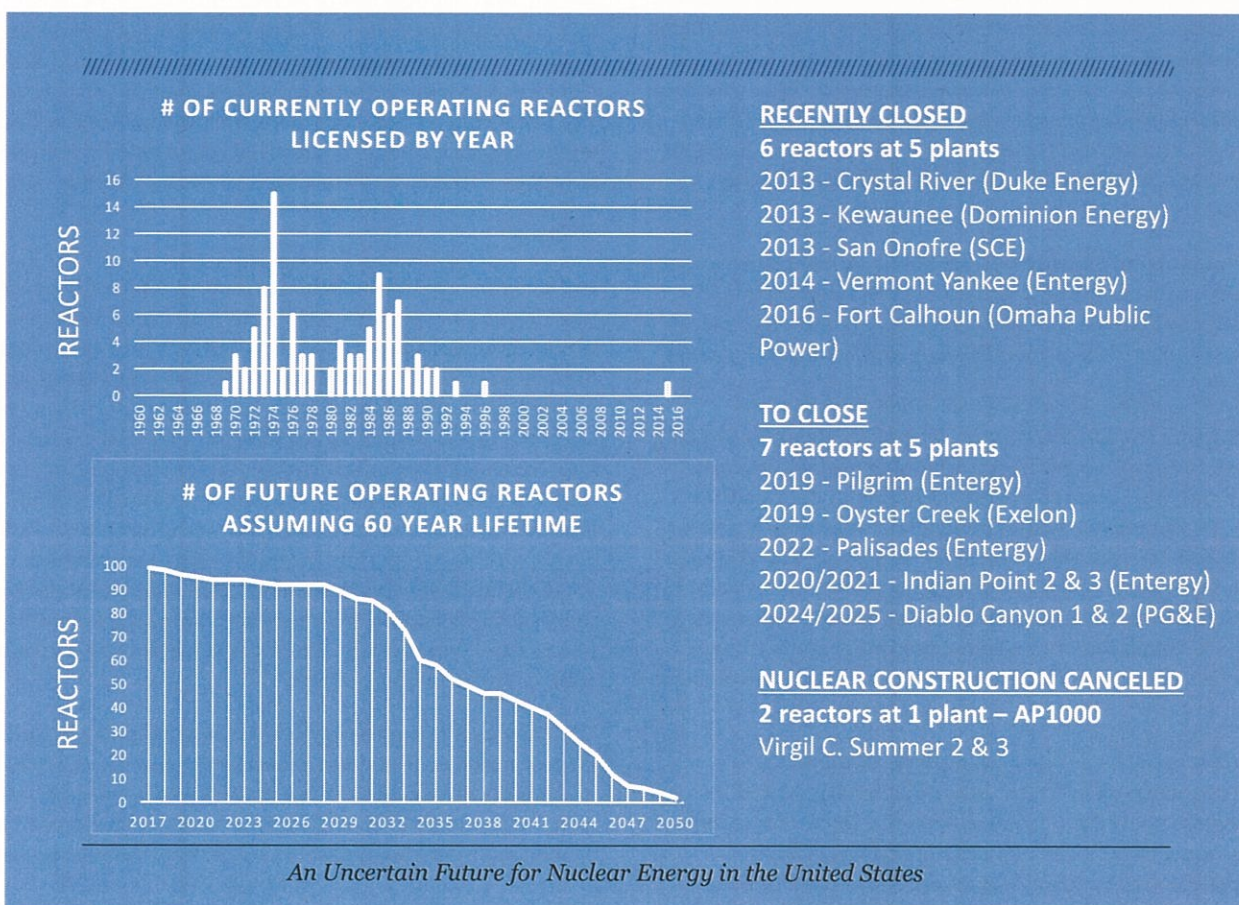
In October, 2017, Connecticut enacted SB1501, "An Act Concerning Zero Carbon Procurement,"¹⁷ directing agencies to consider above-market power agreements for Dominion Energy Inc.'s Millstone plant, the state's sole nuclear facility. The law permits, but does not require, such agreements.

If it is deemed in the public interest after completion of a market study already underway, the Department of Energy and Environmental Protection (DEEP) and the Public Utilities Regulatory Authority could allow Millstone to compete in a solicitation for zero-carbon generating resources, which would likely command higher prices than the wholesale market. The solicitation is limited to up to 12 million megawatt-hours of energy annually, in the aggregate; any proposal selected would result in a purchase agreement with one of the state's utilities.

Dominion contended that without the higher zero-carbon market prices it would prematurely retire the two reactors at the plant, but it has refused to provide the state with proprietary documents supporting its claim of a need for financial relief.

The DEEP commissioner and the Public Utilities Regulatory Authority completed an analysis of the economic viability of the plant shortly following passage of the bill, concluded that Millstone is expected to be highly profitable through 2035, the date one of its licenses expires, and rejected its request for financial support.¹⁸

Recent and Imminent Nuclear Plant Closures



NUCLEAR POWER BASICS

Nuclear power represents 19.7 percent of all U.S. electricity production.¹⁹ The nuclear plant fleet comprises 99 units at 61 facilities across 30 states.²⁰ Most of the units were designed and constructed in the 1960s and 1970s and almost all reach the end of 60-year operating licenses in the 2030s and 2040s. Many of these reactors are at risk of closing well before their license end dates because they are no longer economical and cannot compete in the marketplace, often because of the low price of natural gas and renewable energy and in some cases due to the need to replace expensive major components.

Nuclear power's beneficial low-carbon attributes are important to consider in a warming world but we must take seriously the significant safety, global security, environmental, and economic risks that this technology imposes on society. This reality demands stringent regulation of the complete nuclear fuel cycle, beginning with the mining and milling of uranium and ending with the final disposal of radioactive wastes. The 2011 Fukushima nuclear disaster in Japan, the worst since Chernobyl, illustrates some of these risks. Until these risks are properly mitigated, expanding nuclear power should not be a leading strategy for diversifying America's energy portfolio and reducing carbon pollution. More practical, economical, and environmentally sustainable approaches to reducing U.S. and global carbon emissions are available, including the widest possible implementation of energy efficiency throughout the economy, and the adoption of policies to accelerate the commercialization of clean, flexible, renewable energy technologies.

ENDNOTES

- 1 <http://portal.ct.gov/Office-of-the-Governor/Press-Room/Press-Releases/2017/10-2017/Gov-Malloy-Signs-Bipartisan-Budget>.
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- 9 https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/joint-proposal.page?WT.mc_id=Vanity_jointproposal.
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Michael Wallace
Director
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Federal Affairs

TO: Members of the Assembly Telecommunications & Utilities Committee
Members of the Senate Environment & Energy Committee

FROM: Sara Bluhm, Vice President Environment & Energy

DATE: December 20, 2017

RE: **A-5330** (McKeon, Burzichelli, DeAngelo, Taliferro)/ **S-3560** (Sweeney, Smith, Van Drew) Establishing Nuclear Diversity Certificates

On behalf of our member companies that provide more than 1 million jobs in the state and make the New Jersey Business & Industry Association the largest statewide business association in the country, we are seeking amendments on **A-5330/S-3560** which establishes Nuclear Diversity Certificates (NDC).

The commercial and industrial ratepayer consumes 64% of the electricity in New Jersey and has a vested interest in the development of energy policy, the implications on competitiveness and ratepayer impact. Fuel diversity in our energy supply is a national issue that if not addressed nationally should be dealt with regionally within our electric grid to keep our state economically competitive. New Jersey has the highest electric rates in our grid, therefore it behooves us to address this regionally but in the absence of a regional solution today we must be prepared to ensure energy resilience and availability.

If passed, the legislation would create a process for the New Jersey Board of Public Utilities (NJBPUB) to develop regulations for nuclear power plants that deliver electricity to New Jersey. The bill would also establish a tariff of \$.004 per kilowatt hour to cover the cost of the NDC. There must be offsets to neutralize the impact on business ratepayers and their regional competitiveness.

NJBIA has long supported nuclear power and understands that it is an important part of our fuel diversity. Yet we also recognize the need for business to remain competitive and there must be safeguards for the business ratepayer.

In analyzing this legislation, NJBIA believes the following concerns must be addressed before the bill is considered:

1) Under the existing bill, any reduction in charge is applicable to residential customers only, not commercial and industrial customers. In addition, the load weighting calculation is also only based on residential customers. (Section 3 j 3) **NJBIA Position:** Commercial and Industrial should be added to this section and given the same rate relief as residential customers.

2) The bill does not reflect any Federal regulatory actions, such as a FERC ruling, that would be subtracted from NJ subsidies. Furthermore, while the bill references

a regional compact, it is not clear that PJM as an independent system operator would be considered as such.

NJBIA Position: Language should reflect that regulatory and ISO actions would also be subtracted from any ratepayer subsidy.

3) How will excess money be returned to ratepayers? On bill credit? Check? How do you handle customers that have moved or disconnected service?

NJBIA Position: The current bill does not address how refunds would be processed, only that they are to be given at the end of the energy year. Language should stipulate that for current customers an on-bill credit would be given, and if a customer has moved out of the utility service territory, a prorated refund would be mailed.

4) \$250,000 application fee may not cover the Board's full cost and any remaining costs are borne by ratepayers. (Section 3 j 1)

NJBIA Position: Instead of ratepayers shouldering the burden, the BPU should be given the flexibility to increase the application fee to cover necessary costs. Ratepayers should not have to pick up the excess charges.

5) The definition of nuclear plant is not limited to New Jersey facilities. A Pennsylvania nuclear power plant, for example, could also apply for credits arguing it delivers power to the state, helps improve NJ air quality, and could have an adverse impact on the grid.

NJBIA Position: Recognizing interstate commerce issues, there also needs to be an awareness that New Jersey ratepayers could subsidize out of state plants.

6) Effective immediately but no sunset.

NJBIA Position: Language should reflect a sunset through the three-year review process and set a timeframe for when the subsidy would no longer be applicable.

NJBIA looks forward to working with the legislature to balance the need to protect our energy supply and keep New Jersey affordable to ratepayers. It is critical that policy makers aim to keep New Jersey economically competitive within our region and world. We welcome the opportunity to continue the dialogue with you to improve this legislation for the ratepayers.



Contact: Jerome Montes
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e-mail: jerome@mainstreetalliance.org

Testimony of Jerome Montes, New Jersey Main Street Alliance

Against S-3560 before a Joint State Committee

My name is Jerome Montes and I'm the business representative of the New Jersey Main Street Alliance, a coalition of more than 1,600 independently owned businesses throughout the state. I'm here today to express my alarm and the timing and unseemly haste of S-3560, which would result in a massive, unjustified tax on small businesses and main street New jersey

This is a bill that affects all New Jersey small businesses and their 1.7 million employees and all New Jersey ratepayers. Small businesses with high energy usage will be severely affected but let's not underestimate the ripple effect. Our owners depend on big and medium sized companies, on institutions likes hospitals and on rate-paying communities for their prosperity.

Government should approach such policy carefully, deliberately. This bill is the opposite of that. It's being rushed through lame duck, at a time when most people are worried about the holidays. In many ways it's not that dissimilar from the GOP federal tax plan that's being rammed down New Jersey's throat. Like the GOP tax bill, this legislation does not benefit small business, but it does benefit a wealthy, politically influential corporation.

What we're looking for here is simple. When a small business applies for commercial loan, or a line of credit, they have to open their books. If they apply for a state economic grant, they have to open their books. The same standard should apply to PSEG, and it needs to go far beyond what is specified in this bill. PSEG can't simply hand over a sealed envelope with documents certifying that they need this subsidy. There needs to be an independent forensic financial analysis of their profitability, and above all there needs to be the time set aside for that. For this reason, and for many others, we oppose this legislation.



Nuclear Bailout Testimony on S3560/A5330
Joint Senate Environment & Assembly Telecom Committees
Doug O'Malley, Environment New Jersey Director
12.20.17

PSEG is pushing for a massive lame-duck bailout of their profitable nuclear facilities. This is an outrageous overreach and we need the Legislature to reject this last-minute push to rob ratepayers and undermine the incoming Murphy Administration's clean energy agenda. PSEG is angling for a massive Christmas gift, and we need the public to know they're about to get fleeced.

Timing: This does not need to be done now in such a rushed manner. Even PSEG acknowledges that they are not currently losing money and will not be at risk of losing money for another few years. This time should be spent evaluating possible solutions – not rushing into a drastic fix before it is even necessary. Here is a quick summary of our concerns:

- **This bailout unnecessarily socks ratepayers at a clip of more than \$320 million a year.** There is no justification on where the .004 cents/kwh rate for the nuclear subsidy comes from. There is no indication that it is just and reasonable. While the bill says BPU can lower the .004 cents, the criteria for doing so is whether the reduced amount is sufficient to achieve fuel diversity and air quality objectives, and there is nothing at all about justness and reasonableness. If BPU does reduce the .004 cents, then the whole deal is off, so reducing the rate really isn't an option.
- **This process is a sham.** PSEG is not "opening its books." The Company submits what it decides to submit. Not enough time or opportunity to do discovery, get follow up information, test their numbers or have any kind of evidentiary level review. Many items just require a certification from the Company. The confidentiality provision is unusual and makes the public process meaningless. There is already a process for preserving confidentiality in BPU proceedings. Why do they get a special provision? This means the public hearings will be a sham, with giving the BPU only 90 days to review an application and ties by hand by setting a formula for the annual nuclear bailout.

- There are **crucial terms which are not defined** which could lead to a gaming of the system. How do we measure what is “at risk of loss because the nuclear power plant is cash negative on an annual basis or alternatively is not covering its costs including its cost of capital on an annual basis.” How do we measure a “significant and material contribution to the air quality in this State?” Or a “significant and material contribution to the diversity and resiliency of the energy resource mix.”
- **There is no end date and the three year tranches could give PSEG a windfall** if prices go up in the first or second year. The exit provisions are designed to lock in this bailout . If they pass any statute that reduces the value of the NDC or imposes new charges or taxes on them, the deal is off. So this is guaranteed revenue for an indefinite period of time, with all the good parts of regulation but none of the obligations

This legislation also falls far short of the admittedly imperfect processes in Illinois and New York. A true discussion of this legislation should incorporate those lessons and not be rammed through in lame duck.

- As was done in Illinois, when the BPU reviews and accepts or rejects the procurement results, the BPU should in its public notice of successful bidders be required to quantify the environmental benefit of preserving the resources as well as the costs of replacing those resources with other zero carbon resources such as wind or solar.
- As was seen with Dominion Energy in Connecticut (found to be profitable through 2035), we cannot rely on the plants to determine their own profitability. As a result, the certified cost projections should include the following changes.
 - Any fully allocated overhead costs should be allocated using the methodology developed by the Institute for Nuclear Power Operations (as specified by Illinois).
 - Any additional “necessary” costs for continued operations submitted must only be reasonably avoided by ceasing operations of the facility (as specified by Illinois).
 - However, the best solution would be to have the BPU conduct an appraisal with the use of expert studies instead of having the costs be calculated and submitted by the plants (as specified by Connecticut). This appraisal would establish the current economic conditions of the nuclear facilities as well as their projected economic conditions for a set period of time.



Hearings before the New Jersey Senate Environment and Energy Committee and the House Telecommunications and Utilities Committee

Testimony of

Robert Perciasepe, President of the Center for Climate and Energy Solutions (C2ES)

In Support of S3560 and A5339

December 20, 2017

Background

I am Bob Perciasepe, the president of the Center for Climate and Energy Solutions (C2ES). I am pleased to offer this written testimony to the Committees. Before joining C2ES, I was most recently the Deputy Administrator of the U.S. Environmental Protection Agency (EPA) from 2009 through 2014. Before that I was the chief operating officer for the National Audubon Society as well as the former Secretary of Maryland's Department of Environment. A full biography is attached and submitted for the record.

The organization I now lead, C2ES, is the successor to the Pew Center on Global Climate Change, which was founded in 1998 and is widely recognized as an influential and pragmatic voice on climate and energy issues. Our mission is to advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts. A key objective is a national market-based program to reduce emissions cost-effectively. We believe a sound climate strategy is essential to ensure a strong, sustainable economy.

Our view is that in the long-term, a national market-based program to encourage a lower-carbon economy is the best approach to achieve the needed reductions in emissions. In the near-term, state leadership is essential to maintaining our existing nuclear fleet as we make this transition to a cleaner energy future. We view nuclear power as a vital element in a low carbon economy. In short, I and my organization have come to the unescapable conclusion that preserving the existing U.S. nuclear reactor fleet for as long as possible is a critical element in the transition to a low-carbon future. These units are just too big and too clean to replace quickly. States with the advantage of existing nuclear capacity should take reasonable steps to prevent the premature retirement of these essential clean energy sources while federal and regional and additional state policies are being developed to facilitate renewable energy and energy efficiency.

Decisions today assure New Jersey has the tools it needs to preserve the existing zero emission capacity is a "no regrets" strategy. Preserving New Jersey's nuclear capacity will be an essential element of any state plan to achieve 100% clean energy by mid-century **and it is never too soon to put in place the tools** needed to accomplish that.

We strongly encourage the Legislature to act with an eye toward the clean energy future the citizens of New Jersey deserve.

Value of Existing Nuclear Generation to Climate and Air Quality

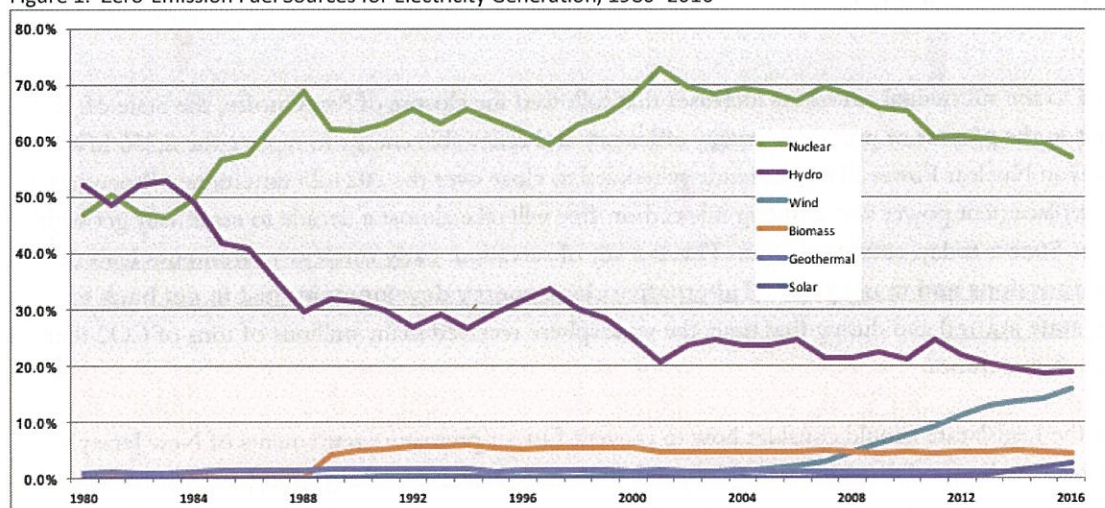
Nuclear power is by far the largest source of zero-emission power in the United States (see Figure 1). The Center for Climate and Energy Solutions was somewhat neutral on the fate of nuclear energy for many years, but in this past decade we have conducted several reviews of pathways to low-carbon electricity. **Our key publication in 2014 found that the goals of significant reductions in greenhouse gas emissions over the next three decades would be severely handicapped if the zero-emissions from nuclear power had to also be compensated for rather than built on.** C2ES has revised its view from neutral to seeing the preservation of existing zero emissions resources, including nuclear, as an irreplaceable **foundation**. There are many possible ways to decarbonize the power sector. However, most long-term studies indicate that a diverse mix of renewables, nuclear power, and fossil fuel with carbon capture utilization and storage is the least cost and least technically challenging path to achieve the mid-century goal.

The existing nuclear fleet has enhanced its capacity greatly in the last two decades. Since 1990, nuclear has consistently supplied around one-fifth of U.S. electric power generation, even while total generation increased 33 percent, largely through power uprates (plant modifications that increase the electrical output of existing reactors), shorter refueling outages, and other efficiency improvements. Uprates alone have added over 6,000 MW of emission-free generating capacity since 1977.

The ninety-nine currently operational reactors, including four here in New Jersey, help avoid the emission of 320 million to 578 million metric tons of carbon dioxide each year. These numbers can seem too large to comprehend – for scale, these avoided emissions equal between one-fifth to one-third of the current emissions of the entire fossil-fired portion of the electric generating sector in the U.S..¹ This means that premature retirement of any reactors make it tougher to meet air pollution, emissions and climate goals.

¹ Extrapolated from <https://www.eia.gov/tools/faqs/faq.php?id=77&t=11>

Figure 1. Zero-Emission Fuel Sources for Electricity Generation, 1980–2016



In New Jersey, about 97 percent of the state’s emission-free electricity is delivered from those four reactors. (Oyster Creek is scheduled to retire by 2019 before its license expires.)

The situation for emission-free electricity after 2019 when Oyster Creek retires, will continue to be overwhelmingly nuclear. The Salem and Hope Creek plants prevent substantial emissions of CO₂, SO₂, NO_x, particulate matter and the formation of ozone, compared to the alternative of natural gas and coal-fired generation that would most likely replace their output.

Similarly, overall NO_x and particulate emission and ozone would all increase by more than current New Jersey levels. Given the region’s geography, much, if not all, of the replacement generation would be upwind, subjecting New Jersey to the associated pollution while giving up the economic benefits of hosting the generation, including local and state taxes and jobs.

Existing Nuclear Supports the Clean Energy Transition

As I’ve noted, the existing nuclear fleet provides a vast amount of zero-emissions electricity that is simply not replaceable quickly. Governor Elect Murphy has committed to developing a new energy master plan that would develop the path to achieve 100% clean energy by 2050. New Jersey’s nuclear power stations already provide over 90% of the state’s existing clean energy. We have uniformly seen in other states, with premature nuclear retirements, the lost emission-free power was substantially replaced with coal or natural gas. This increased emissions of CO₂ as well as traditional air pollutants that contribute to smog and other serious public health impacts. Looking at in-state power sector CO₂ emissions in the year before and the year after nuclear power plant closures for these three states:

- Wisconsin saw a 2.6 million metric ton increase,
- Florida saw a 2.7 million metric ton increase, and

- California's saw a 9.6 million metric ton increase.

In response to the substantial emissions increases that followed the closure of San Onofre, the State of California is in the process of procuring energy efficiency and renewable energy to replace the 2,256 MW Diablo Canyon Nuclear Power Plant, currently scheduled to close over the 2024-25 timeframe. Procuring this much replacement power and ensuring it is carbon-free will take almost a decade to essentially get back to where the State is today, emissions-wise. This is a key observation: early nuclear retirements lead to increased emissions and many years of alternative clean energy development, just to get back to where the state started and during that time, the atmosphere received many millions of tons of CO2 that will be there for centuries.

Therefore, the Legislature should consider how to prevent further premature retirements of New Jersey's reactors, which are licensed through 2036, 2040, and 2046, notwithstanding the pending early retirement of Oyster Creek Generating Station. Retiring any of the three remaining reactors would give up decades of carbon-free power. This in turn would relegate New Jersey's needed new and additional investment in renewable energy, energy efficiency, and energy storage, to the task of first digging out of the pollution hole created by those retirements.

New Jersey is in a stronger position than most states to build on the existing zero-emission foundation with a broader green energy push to move into a national leadership position. Keeping these plants ensures these investments have time to get on the grid, but importantly also ensures they are additional, not just making up for lost nuclear – we need both to make the kind of difference the science tells us we need to make by mid-century.

Providing the tools now to enable the state to manage the retention of the existing nuclear capacity assures that new clean energy will be additive. Any clean energy plan will include that reality and acting now is simply a no regrets strategy, there is no need to wait.

For myself and my organization, planning to preserve the zero-emission capacity already in place is a necessary foundation to begin the discussion on moving New Jersey forward on clean energy. Without the existing nuclear fleet, any meaningful clean energy transition will be set back possibly decades. It is always good practice to have a solid foundation in place as you begin to build the house.

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PennEast Pipeline Company, LLC

| Docket No. CP15-558-000

COMMENTS OF THE NEW JERSEY DIVISION OF
RATE COUNSEL

This proceeding concerns a request by PennEast Pipeline Company, LLC (“PennEast”) for Commission authorization to construct and operate a 118.8-mile greenfield pipeline. If constructed as proposed, PennEast’s pipeline will have a significant impact on New Jersey consumers. The proposed pipeline’s route consists of 115.1 miles of new 36-inch-diameter pipeline extending from Luzerne County, Pennsylvania to Mercer County, New Jersey; the 2.1-mile Hellertown Lateral consisting of 24-inch-diameter pipe in Northampton County, Pennsylvania; the 0.1-mile Gilbert Lateral consisting of 12-inch-diameter pipe in Hunterdon County, New Jersey; and the 1.5-mile Lambertville Lateral consisting of 36-inch-diameter pipe in Hunterdon County, New Jersey (the “Project”). The Project’s price tag is estimated to be \$1.13 billion.

In response to the Commission’s July 22, 2016 Notice,¹ intervenor New Jersey Division of Rate Counsel (“NJ Rate Counsel”) respectfully submits its comments on the “Draft Environmental Impact Statement for the Proposed PennEast Pipeline Project.”² As explained herein and in the accompanying affidavit of David E. Dismukes, Ph.D. (“Dismukes Affidavit”), the record does not support Commission authorization of the

¹ *PennEast Pipeline*, Notice of Availability of the Draft Environmental Impact Statement for the Proposed PennEast Pipeline Project (July 22, 2016), eLibrary No. 20160722-4010.

² *PennEast Pipeline*, Draft Environmental Impact Statement for the PennEast Pipeline Project (July 22, 2016), eLibrary No. 20160722-4001 (“DEIS”).

Project. PennEast has failed to demonstrate that the Project is in fact "needed," and the DEIS gives overly short shrift to the "no action" alternative. Moreover, the terms under which the Project has been proposed are unduly generous to PennEast and unfair to consumers.

I. COMMUNICATIONS AND CORRESPONDENCE

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II. COMMENTS

- A. *The DEIS analysis of the no action alternative is deficient because it fails to include a sufficient examination of whether the Project is necessary to fulfill a legitimate need.*

Section 1502.14(d) of the regulations implementing the National Environmental Policy Act, 40 C.F.R. § 1502.14(d), requires the Commission to evaluate "the alternative of no action." In its current form, the Project DEIS is deficient in that it fails to give fair consideration to the no action alternative. The DEIS does not evaluate fully whether the Mid-Atlantic region in fact needs the proposed additional pipeline capacity. Instead, in analyzing the no-action alternative, the DEIS accepts at face value PennEast's assertion

that additional pipeline capacity into the Mid-Atlantic is necessary, thereby failing to examine whether PennEast has in fact demonstrated that need.

The DEIS rejects the potential no action alternative because while doing so would obviously avoid the Project's short- and long-term environmental impacts, "the objectives of the Project would not be met." DEIS at 3-3. The DEIS describes the Project as a "response to market demands and interest from shippers that require transportation capacity to accommodate increased demand and greater reliability of natural gas in the region," intended to "provide a long-term solution to bring the lowest cost natural gas available . . . to homes and businesses in Pennsylvania, New Jersey, and surrounding states." *Id.* In short, and as explained in the DEIS, the no action alternative is not preferable because it will not satisfy "the objectives of the Project, provide an equivalent supply of energy, or meet the demands of the Project shippers." *Id.* at ES-15 and 5-18; *see also PennEast Pipeline Co., Application of PennEast for Certificates of Public Convenience and Necessity and Related Authorizations* at 4 (Sept. 24, 2015), eLibrary No. 20150925-5028 ("Application"). More specifically, the DEIS asserts that "[i]f PennEast's proposed facilities are not constructed, the Project shippers may need to obtain an equivalent supply of natural gas from new or existing pipeline systems." DEIS at 3-3. This determination misses the mark because PennEast has not demonstrated that the purported "increased demand [for] . . . natural gas in the region" in fact exists. *Id.*

PennEast bases its claim of need on "precedent agreements with seven foundation shippers and twelve total shippers, which together combine for a commitment of firm capacity of 990,000 dekatherms per day ('Dth/d')," approximately 90% of the Project's total capacity. Application at 2, 10-11. Although the Commission views "long-term firm

capacity as important evidence of market demand,”³ NEPA requires FERC to examine more “rigorously” the need for a proposed project before rejecting potential alternatives, including no action.⁴ In this case, approximately 610,000 Dth/d of the 990,000 Dth/d of capacity has been contracted by affiliates of the Project owners. Application at 10. PennEast is a joint venture owned by Spectra Energy Partners, LP together with subsidiaries of AGL Resources Inc., New Jersey Resources, South Jersey Industries, UGI Energy Services, LLC, and Public Service Enterprise Group (“PSEG”). *Id.* at 7-8. Of the twelve shippers that have subscribed to Project capacity, five of them are affiliates of companies that collectively own PennEast. Specifically, Pivotal Utility Holdings, Inc. (D/B/A Elizabethtown Gas), a subsidiary of AGL Resources, Inc., has contracted for 100,000 Dth/d. New Jersey Resources is the parent company of New Jersey Natural Gas Company, which has contracted with PennEast for 180,000 Dth/d of firm transportation capacity. Similarly, South Jersey Industries subsidiary South Jersey Gas Company has contracted with PennEast for firm capacity of 105,000 Dth/d. UGI Energy Services, LLC, the parent of PennEast stakeholder UGI PennEast LLC, has contracted for firm capacity 100,000 Dth/d. And PSEG Power LLC, a member of the PSEG corporate family, has likewise contracted for 125,000 Dth/d. *Id.* Thus, two-thirds of the demand for the pipeline exists because the Project’s stakeholders have said it is needed. This self-dealing undermines the assertion of need that the DEIS relies upon to dismiss the no action alternative.

³ *Id.* at 10 citing *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227, at 61,744 (1999), *corrected*, 89 FERC ¶ 61,040 (1999), *clarified in* 90 FERC ¶ 61,128, *further clarified in* 92 FERC ¶ 61,094 (2000)

⁴ See 40 C.F.R. § 1502.14(a) (requiring an agency preparing an environmental impact statement to “[r]igorously explore and objectively evaluate all reasonable alternatives”).

Given that two-thirds of the capacity under precedent agreements is with affiliates of the owners, the DEIS should have included an independent analysis of the need for the capacity the proposed Project will provide. NJ Rate Counsel asserts that such an independent analysis would have revealed that the forecasted supply and demand requirements for New Jersey and Pennsylvania local gas distribution companies (“LDCs”) can be met through existing supply arrangements. The table below provides peak day requirement—i.e., the highest 24-hour usage of natural gas during a year—and total supply projections for three New Jersey LDCs and three Pennsylvania LDCs, as reported to the New Jersey Board of Public Utilities (“NJ BPU”) and the Pennsylvania Public Utility Commission, respectively.

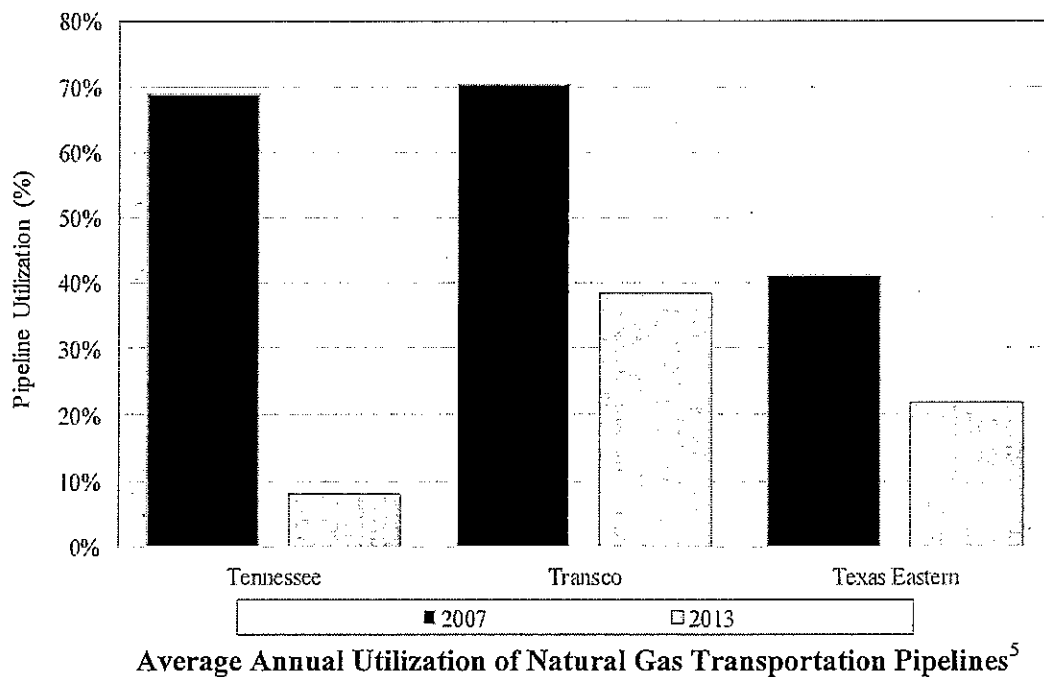
	PSE&G			South Jersey Gas			Elizabethtown Gas		
	Peak Day Requirement	Total Gas Supply	Percent of Total	Peak Day Requirement	Total Gas Supply	Percent of Total	Peak Day Requirement	Total Gas Supply	Percent of Total
	(Dth)	(%)		(Dth)	(%)		(Dth)	(%)	
2015 - 2016	3,075,400	3,072,400	100%	n.a.	n.a.	n.a.	189,820	397,820	210%
2016 - 2017	3,089,600	3,074,500	100%	512,891	554,755	108%	285,070	402,610	141%
2017 - 2018	3,113,200	3,075,900	99%	520,555	564,755	108%	288,440	423,890	147%
2018 - 2019	3,141,000	3,078,500	98%	528,351	564,755	107%	n.a.	n.a.	n.a.
2019 - 2020	3,181,100	3,079,900	97%	536,280	564,755	105%	n.a.	n.a.	n.a.

	UGI Utilities			UGI Penn			PECO		
	Peak Day Requirement	Total Gas Supply	Percent of Total	Peak Day Requirement	Total Gas Supply	Percent of Total	Peak Day Requirement	Total Gas Supply	Percent of Total
	(Dth)	(%)		(Dth)	(%)		(Dth)	(%)	
2015 - 2016	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2016 - 2017	827,320	812,343	98%	208,303	208,303	100%	802,834	720,017	90%
2017 - 2018	844,804	828,120	98%	209,752	209,187	100%	n.a.	n.a.	n.a.
2018 - 2019	862,288	843,288	98%	211,201	209,957	99%	n.a.	n.a.	n.a.
2019 - 2020	879,772	858,456	98%	212,650	210,727	99%	n.a.	n.a.	n.a.

LDC Forecast Peak Day Requirement and Total Natural Gas Supply

As Dr. Dismukes explains, these LDCs’ own projections suggest peak day requirements will remain relatively stable through 2020—and indicate that there is no imminent need for significant amounts of additional capacity. Dismukes Aff. ¶¶ 10-12. Further, the displacement of Gulf Coast supplies by emerging natural gas production from the

Marcellus Shale and the Utica Shale at traditional market area receipt points has left long-haul pipelines, including those that serve New Jersey LDCs, with underutilized upstream capacity. Dismukes Aff. ¶¶ 13. Specifically, Tennessee Gas Pipeline (“Tennessee”), Transcontinental Gas Pipeline (“Transco”), and Texas Eastern Transmission (“Texas Eastern”), all of which serve New Jersey LDCs, have seen significant drops in capacity utilization since 2007, as demonstrated in the table below. *Id.*



In addition to the glut of underutilized capacity on existing gas transmission systems into the Mid-Atlantic, New Jersey LDC Public Service Electric & Gas Company (“PSE&G”) reports that it has *turned back* 145,000 Dth/d of firm transportation capacity in the past

⁵ Denny Young, Black & Veatch, *Has Emerging Natural Gas Shale Production Affected Financial Performances of Interstate Pipelines?* (2013), <http://bv.com/energy-strategies-report/august-2013-issue/has-emerging-natural-gas-shale-production-affected-financial-performances-of-interstate-pipelines>.

year.⁶ Several New Jersey LDCs also report sufficient access to production from the Marcellus Shale.⁷ For example, in its most recent annual review and revision of its basic gas supply service, New Jersey Natural Gas Company reported that “[t]he majority of the market area assets of the Company are positioned to take advantage of the natural gas produced in the Marcellus Shale.”⁸ As Dr. Dismukes makes clear, the data suggest that that the market does not demand additional transportation capacity or, more specifically, additional access to the Marcellus Shale.

This significant evidence notwithstanding, the DEIS accepts at face value PennEast’s assertion of need for the Project, and relies on that assertion almost exclusively in dismissing the no action alternative. Specifically, the DEIS suggests that

[i]f PennEast’s proposed facilities are not constructed, the Project shippers may need to obtain an equivalent supply of natural gas from new or existing pipeline systems. In response, PennEast or another natural gas transmission company would likely develop a new project or projects to provide the volume of natural gas contracted through the Project’s binding precedent agreements with the Project shippers. Alternatively, customers of the Project shippers could seek to use alternative fuel or renewable energy sources, which could require new facilities. In either case, construction of new pipelines or other energy infrastructure would result in environmental impacts that could be equal to or greater than those of the Project.

⁶ PSE&G, Initial Filing Motion, Supporting Testimony, and Tariff Modifications at Item 18, § 3, *In the Matter of Pub. Serv. Elec. & Gas Co.’s 2016/2017 Annual BGSS Commodity Charge Filing for its Residential Gas Customers Under its Periodic Pricing Mechanism and for Changes in its Balancing Charge*, Docket No. GR16060486 (N.J. Bd. Pub. Utils. Jun. 1, 2016).

⁷ *Id.* (“The ability of the Company to buy more economical gas supplies in the Marcellus region has provided the ability to turn back [] capacity at the expiration of [its] pipeline contracts,” with “both Trunkline and Panhandle.”); *see also* Pre-filed Direct Testimony and Exhibits of Jayana S. Shah at 6:10-11, attached to N.J. Natural Gas Co., Petition, *In the Matter of the Petition of N.J. Natural Gas Co. for the Annual Review & Revision of Its Basic Gas Supply Serv. (BGSS) & Conservation Incentive Program (CIP) Rates for F/Y 2017*, Docket No. GR16060482 (N.J. Bd. Pub. Utils. Jun. 1, 2016) (“The Company’s transport and storage assets are positioned to flow supply from Marcellus Shale.”).

⁸ *Id.* at 6:17-19.

DEIS at 3-3. For these reasons, the DEIS states that “the No Action Alternative would not be preferable to or provide a significant environmental advantage over the Project.” *Id.* But the “need” that the Project purports to fill, which has been asserted by affiliates of the Project owners, is contrary to the utilization data presented above. Those data show that the forecasted demands of the LDCs that PennEast is designed to supply are already being met by existing gas supply arrangements and available transportation capacity. For these reasons, NJ Rate Counsel asks that the Commission not accept the findings of the DEIS, and urges that the Commission take a much closer look at the fundamental question of whether the capacity of the Project is, in fact, “needed.”

B. PennEast’s requested rate of return is excessive.

As described above, PennEast’s justification of the Project’s “need” consists of precedent agreements with affiliates of the Project owners—notwithstanding that those same affiliates appear to have sufficient capacity to meet demand through at least 2020. NJ Rate Counsel is concerned that the DEIS does not address that the “need” for the Project appears to be driven more by the search for higher returns on investment than any actual deficiency in gas supply or pipeline capacity to transport it. Even if there were in fact a demonstrated need for the transportation capacity PennEast proposes to offer, a reasonable, compensatory rate should be sufficient to bring that capacity to market. By contrast, and as explained below, PennEast is requesting rates calculated using a substantially above-market return on equity (“ROE”) of 14%, an equally above-market and unsupported 6.00% cost of debt, and a 60% equity-heavy capital structure. Application at 32. But the pursuit of rich financial incentives does not constitute a showing of “need” and is insufficient to justify the Project.

1. The potential to obtain a high award of a rate of return is creating the “need” for the PennEast Project.

As the Commission is well aware from its consideration in the last few years of both pipeline rate cases and a large number of Federal Power Act complaints, ROEs have been trending down significantly as a reflection of capital market realities. The Commission has been presented with applications of its Discounted Cash Flow (“DCF”) methodology that support ROEs in the 8% range.⁹ In this financial environment, the opportunity to receive a Commission-regulated return of 14% is tantamount to winning the lottery. NJ Rate Counsel is concerned that this opportunity may be a key motivating factor behind the Project.

As noted above, PennEast is 90% owned by affiliates of LDCs in Pennsylvania and New Jersey. Application at 10-11. Moreover, New Jersey Natural Gas, South Jersey Gas, and Pivotal Utility Holdings, Inc. (D/B/A Elizabethtown Gas) have signed precedent agreements for 385,000 Dth/d, or nearly 40%, of the subscribed capacity. Application at 10. At present, the NJ BPU has authorized New Jersey Natural Gas, South Jersey Gas, and Elizabethtown Gas to earn returns on common equity of up to 9.75%,¹⁰ 9.75%,¹¹ and

⁹ See, e.g., *Sw. Power Pool, Inc.*, Prepared Direct and Answering Testimony of Commission Trial Staff Witness Sophia Z. Luo, Ex. S-8, Docket No. ER16-204-001 (Aug. 2, 2016), eLibrary No. 20160802-5114 (recommending an ROE of 8.36%, which was the median of a zone of reasonableness of 6.51% to 9.50% for a six-month study period ending June 30, 2016 using a proxy group for a utility with an S&P credit rating of “A” and Moody’s credit rating of Baa1).

¹⁰ *In the Matter of Petition of New Jersey Natural Gas Co. for Approval of an Increase in Gas Base Rates and for Changes in its Tariff for Gas Serv., Approval of Safe Program Extensions, and Approval of Safe Extension and NJ Rise Rate Recovery Mechanisms Pursuant to N.J.S.A. 48:2-21, 48:2-21.1 and for Changes to Depreciation Rates for Gas Property Pursuant to N.J.S.A. 48:2-18* at 17, 22, line 30, Docket No. GR15111304 (N.J. Bd. Pub. Utils. Aug. 17, 2016).

¹¹ *In the Matter of the Petition of S. Jersey Gas Co. For Approval of Increased Base Tariff Rates and Charges for Gas Serv. and Other Tariff Revisions*, Decision and Order Approving Stipulations at 4, Docket No. GR13111137 (N.J. Bd. Pub. Utils. Sept. 30, 2014).

11.3%,¹² respectively. However, if these New Jersey LDCs buy transport on PennEast under Commission-regulated rates that provide a 14% ROE, New Jersey retail customers will pay that 14% return, not the return authorized by New Jersey regulators.

And the establishment by New Jersey regulators of rates of return in the 9-10% range is far from out-of-step with national trends; their rulings are consistent with both state commission decisions elsewhere and actual conditions in the capital markets. The table below provides data collected by Regulatory Research Associates that summarizes state regulator decisions establishing ROE and capital structure for gas utilities.

Average State Commission-Approved Rates of Return for Gas Utilities		
<u>Year</u>	<u>ROE</u>	<u>Equity Ratio</u>
2012	9.94%	51.13%
2013	9.68	50.60
2014	9.78	51.11
2015	9.60	49.93
2016	9.45	50.42

Source: Regulatory Research Associates, *Major Rate Case Decisions, January-June 2016*, July 15, 2016 at 5. (Note: 2016 figures are derived from year-to-date data through June 2016.)

Notably, the data show that, over the last five years, state regulators have consistently approved ROEs of less than 10% for natural gas utilities. If FERC uses a 14% ROE, however, to establish transportation rates, state regulators must permit LDCs to recover those costs. When a pipeline is owned by an affiliate of an LDC, and that affiliate is permitted by the Commission to recover an ROE above that approved by the state

¹² *In the Matter of the Petition of Pivotal Util. Holdings, Inc. d/b/a Elizabethtown Gas for Approval of Increased Based Tariff Rates and Charges for Gas Servs. and Other Tariff Revisions*, Decision and Order Approving Stipulation and Adopting Initial Decision at 3, Docket No. GR09030195 (N.J. Bd. Pub. Utils. Dec. 17, 2009).

regulator, the end result is that the parent of the affiliates receives the substantially higher return awarded by the Commission—the state commission decision notwithstanding.

2. The Commission should not reflexively award the Project a 14% ROE simply because other pipelines have been awarded 14% ROEs.

PennEast has provided no evidence or analysis that links the high ROE it seeks with the need to obtain investor capital to build the pipeline. To the contrary, the Project lacks the hallmarks that would justify assessing its risk as “extraordinary” as compared to other greenfield projects. Specifically, PennEast boasts that approximately 90% of the Project’s transportation capacity has been subscribed.¹³ The majority of the subscribed capacity consists of LDCs in New Jersey, Pennsylvania, and New York—meaning that it is subscribed by entities who are all but guaranteed to pay their bills. Moreover, even the non-LDC subscribers—predominantly electric power generators—have strong credit. Thus, there would seem to be little or no risk of either unsubscribed capacity or customer default.

PennEast’s capital structure is conservative. As can be seen from the utility data compiled by Regulatory Research Associates in the table above, regulated gas utilities have consistently been required to maintain an equity ratio around 50% equity. In contrast, PennEast proposes to maintain an equity-heavy capital structure of 60% equity.¹⁴ By comparison, the Commission has also awarded a 14% ROE in connection with proposed capital structures that included up to 75% debt,¹⁵ but PennEast’s proposed

¹³ Application at 10.

¹⁴ *Id.* at 32.

¹⁵ *Cross Bay Pipeline Co.*, 97 FERC ¶ 61,165, at 61,757-758 (2001), *vacated on other grounds*, 98 FERC ¶ 61,080 (2002) (“Cross Bay”) (awarding a 14% ROE with a 25% equity and 75% debt).

60% equity capital structure is significantly less risky. Accordingly, the proposed capital structure does not justify PennEast's proposed 14% ROE.

Rather than justify its requested ROE through Project-specific substantive evidence, PennEast asserts that awarding the exorbitant ROE it seeks is simply a matter of "keeping up with the Joneses," noting that there are "[o]ther new greenfield pipelines with approved overall rates of return that equal the 14% return on equity that PennEast proposes here."¹⁶ NJ Rate Counsel acknowledges that the Commission has awarded generous 14% rates of return to other greenfield pipelines in recent years. But in and of itself that does not justify a reflexive award of that same ROE, as the extant circumstances and those surrounding the first award of a 14% ROE are substantially different.

The Commission began granting ROEs of 14% nearly two decades ago,¹⁷ though those ROEs were initially granted in connection with imputed capital structures consisting of as much as 75% debt and no less than 50% debt.¹⁸ In the period since the Commission's 1997 *Alliance* decision, capital markets have changed significantly. The years since have included, *inter alia*, the "Great Recession," and the proliferation of

¹⁶ Application at 33.

¹⁷ See e.g., *Ruby Pipeline, L.L.C.*, 128 FERC ¶ 61,224, P 53 & n.54 (2009), *subsequent history omitted* (citing *Mid-Atlantic Express, LLC*, 126 FERC ¶ 61,019, P 31 (2009), *vacated on other grounds*, 145 FERC ¶ 61,113 (2013) (capital structure of 70% debt); *MarkWest Pioneer, L.L.C.*, 125 FERC ¶ 61,165, P 27 (2008) ("the Commission has approved equity returns of up to 14 percent as long as the equity component of the capitalization is no more than 50 percent"); *Ingleside Energy Center, LLC*, 112 FERC ¶ 61,101, PP 32-33 (2005), *vacated on other grounds*, 136 FERC ¶ 61,114 (2011) (reducing the proposed 70% equity capital structure to 50%)). The Commission's award of a 14% ROE, provided the equity structure is less than 50%, goes back even further. See e.g., *Cross Bay*, 97 FERC ¶ 61,165, at 61,757-758 (2001), *vacated on other grounds*, 98 FERC ¶ 61,080 (2002) (awarding a 14% ROE with a 25% equity and 75% debt); *Vector Pipeline L.P.*, 85 FERC ¶ 61,083 at 61,303 (1998), *subsequent history omitted* (awarding a 14.5% ROE); *Alliance Pipeline L.P.*, 80 FERC ¶ 61,149, at 61,592 (1997), *subsequent history omitted* (proposing a 12% base ROE with incentives enabling a maximum of 14% ROE).

¹⁸ See *supra* note 17.

hydraulic fracturing to recover previously inaccessible natural gas from substantial domestic shale gas reserves. Rather than approving facilities to import liquefied natural gas ("LNG"), the Commission is now approving facilities used for LNG exports. Given these seismic shifts in the facts on the ground, it is irrational to assume that the same return that was required in 1997 is appropriate now. There is no basis for the Commission approving a 14% ROE simply because earlier pipelines have received that ROE.

Present capital markets require much lower returns and investors no longer require the same returns that they required twenty years ago. While the median result of the Commission's Discounted Cash Flow analysis may not yield the appropriate ROE for a greenfield pipeline, it provides the measure of the return investors require. For example, although not a greenfield pipeline, the Commission recently ordered a new pipeline company to use the 10.55% ROE¹⁹ that the Commission determined to be the just and reasonable ROE in *El Paso Natural Gas Co.*, Opinion No. 528, 145 FERC 61,040, at P 642 (2013), *denying stay*, 145 FERC ¶ 63,107 (2013), *denying reconsideration*, 146 FERC ¶ 63,001 (2014), *reh'g denied*, Opinion No. 528-A, 154 FERC ¶ 61,120 (2016). If a 10.55% ROE provides a sufficient return for a start-up pipeline company, a 14% ROE is not required for a pipeline that claims a 90% subscription rate, largely by LDCs whose affiliates own the pipeline. As such, it would be arbitrary and capricious for the Commission to approve a 14% ROE for PennEast simply because it has awarded other pipelines such a return.

¹⁹ *First ECA Midstream LLC*, 155 FERC ¶ 61,222, P 23 (2016).

3. PennEast should be limited to a 50% equity capital structure.

As noted above, the genesis of the Commission's award of 14% ROEs was in the context of capital structures that were heavily weighted with debt—as much as 75%.²⁰ The Commission reduced what it then deemed to be equity-heavy proposed capital structures to reflect that its prior approvals were for debt-heavy structures.²¹ If the Commission determines—notwithstanding the significant changes in the capital markets and the natural gas industry over the last twenty years—that the Project requires a 14% ROE, then the Commission must also limit PennEast's capital structure to 50% equity.

C. PennEast's proposed 6.0% cost of debt is unsupported and excessive because it substantially exceeds the current market.

PennEast has not supported its request for a 6.00% cost of debt, but points again to other pipelines filings that were certificated more than five years ago and involve different markets.²² PennEast offers no objective evidence as to what the cost of debt will be for the Project.

The Commission, however, knows what interest rates utility bond issuances command. Moody's reports that the monthly trend of long-term utility bond rates, whether for "A" rated or "Baa" rated, has been down during 2016. According to Moody's, "A" rated bonds have declined from 4.27% in January to 3.57% in July. Even if PennEast bonds are considered to be nearly junk and rated at "Baa", a highly unlikely scenario given its ownership by affiliates of regulated utilities and which regulated

²⁰ See *supra* note 17.

²¹ *Ingleside Energy Center, LLC*, 112 FERC ¶ 61,101, at PP 32-33 (2005), *vacated on other grounds*, 136 FERC ¶ 61,114 (2011) (reducing a proposed 70% equity structure to 50%).

²² Application at 32 & n. 21.

utilities have signed precedent agreements reserving substantially all of the pipeline's capacity, Moody's reports that "Baa" bonds have declined from 5.49% in January to 4.16% in July. The table below provides the monthly data.

Long-term Bond Yields in 2016				
<u>Month</u>	<u>Moody's Utility</u>		<u>U.S. Treasury</u>	
	<u>A</u>	<u>Baa</u>	<u>10-year</u>	<u>30-year</u>
January	4.27%	5.49%	2.09%	2.86%
February	4.11	5.28	1.78	2.62
March	4.16	5.12	1.89	2.68
April	4.00	4.75	1.81	2.62
May	3.93	4.60	1.81	2.63
June	3.78	4.47	1.64	2.45
July	3.57	4.16	1.50	2.23

Source: Bd. of Governors of the Fed. Reserve Sys., *Selected Interest Rates (Daily)* – H.15, <https://www.federalreserve.gov/releases/h15/data.htm> (follow (1) "U.S. government securities," (2) "Treasury constant maturities," (3) "Nominal," (4) "10-year" and select "Monthly" hyperlink; then repeat these steps but replace "10-year" with "30-year" in step (4) (last visited Sept. 9, 2016); Moody's Bond Record, August 2016.

This table also illustrates the parallel decline in ten-year and thirty-year Treasury yields. Compared with this data, PennEast's assertion of a debt cost of 6.00% is substantially above market.

In a more recent decision, the Commission has imputed a much more realistic debt rate. In the *First ECA Midstream* proceeding, the pipeline requested—and the Commission accepted—an imputed debt rate of 3%.²³ NJ Rate Counsel understands that this decision was issued after PennEast's application was filed, but urges the Commission

²³ *First ECA Midstream LLC*, 155 FERC ¶ 61,222, PP 22-23.

not to ignore that PennEast's unsupported imputed cost of debt is double what the Commission has just accepted.

The Commission should recognize the reality of the financial market in which PennEast will issue its debt, and should impute a debt cost consistent with its recent precedent and consistent with actual debt market rates.

III. CONCLUSION

NJ Rate Counsel respectfully requests that the Commission take the forgoing comments and the accompanying Dismukes Affidavit into consideration in determining the actions that should be taken concerning PennEast's request for authorization to construct and operate the Project.

Respectfully submitted,

/s/ Scott H. Strauss

Scott H. Strauss
Stephen C. Pearson
Amber L. Martin

Attorneys for
New Jersey Division of Rate
Counsel

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(202) 879-4000

September 12, 2016

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated on this 12th day of September, 2016.

/s/ Amber L. Martin

Amber L. Martin

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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PennEast Pipeline Company, LLC

) Docket No. Docket No. CP15-558-000
)
)
)

AFFIDAVIT OF DAVID E. DISMUKES, PH.D.

I. Introduction

1. My name is David E. Dismukes. My business address is 5800 One Perkins Place Drive, Suite 5-F, Baton Rouge, Louisiana, 70808. I am a Consulting Economist with Acadian Consulting Group ("ACG"), a research and consulting firm that specializes in the analysis of regulatory, economic, financial, accounting, and public policy issues associated with energy and infrastructure industries. ACG is a Louisiana-registered partnership, formed in 1995, and is located in Baton Rouge, Louisiana.

2. I hold both M.S. and Ph.D. degrees in economics from Florida State University. Over the past twenty-eight years, I have been actively involved in research, government service, and consulting involving energy and infrastructure industries. My professional experience includes the examination of economic, statistical, and public policy issues in regulated and energy industries.

3. I have participated in over 300 regulatory proceedings in twenty-five states and have prepared expert witness testimony, reports, and affidavits in Arkansas, Arizona, Colorado, Delaware, Florida, Indiana, Illinois, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, Nevada, New Jersey, Ohio, South Carolina, Tennessee, Texas, Utah, Vermont, Washington, the District of Columbia, and before the Federal Energy Regulatory Commission ("FERC"). I have also testified before the U.S. Congress and various state legislatures.

4. In addition to my consulting work, I serve as a Professor, Executive Director, and Director of Policy Analysis at the Center for Energy Studies, Louisiana State University ("LSU"). I am also a full Professor in the College of the Coast and the Environment where I serve on the faculty of the Department of Environmental Sciences and as the Director of the

Coastal Marine Institute. I am also an Adjunct Professor in the E.J. Ourso College of Business Administration and I am a full member of the LSU Graduate Faculty.

5. I have published over 200 articles, professional papers, reports, book chapters, books, and manuscripts on energy and infrastructure industries. My professional research experience includes the analysis of a wide range of issues related to regulated energy companies, particularly electric and natural gas utilities. This research includes the examination of resource planning issues, power and natural gas market restructuring, ratemaking and cost recovery issues, power plant efficiency, multi-area dispatch modeling issues, ratemaking and cost of service modeling, and the integration of environmental considerations on utility operations.

6. A copy of my academic vitae has been provided as Attachment 1 to this affidavit and includes a list of my professional employment positions, publications, technical reports, presentations, and expert reports, testimonies, and affidavits.

7. I have worked as an advisor or consultant to the New Jersey Division of Rate Counsel ("NJ Rate Counsel") for over 10 years. My work has primarily been associated with advising NJ Rate Counsel on a variety of ratemaking, public policy, infrastructure, and energy market issues. I have specifically worked on a number of natural gas policy, ratemaking, natural gas infrastructure replacement and resiliency, and natural gas procurement issues associated with New Jersey's investor-owned natural gas utilities.

8. I have reviewed the peak day requirements for three New Jersey Local Distribution Companies ("LDCs"): Public Service Electric & Gas Company ("PSE&G"); South Jersey Gas Company ("SJG"); and Elizabethtown Gas Company ("Elizabethtown"), as well as three Pennsylvania LDCs: UGI Utilities; UGI Central Penn Gas; and PECO.¹ These LDCs serve

¹ The relevant data for New Jersey's fourth LDC, New Jersey Natural Gas, was unavailable and therefore not included in this analysis.

customers located in and around the PennEast facilities and, if the PennEast Pipeline is built, can be expected to be target customers of the Project.

9. For natural gas LDCs, a peak day is the highest 24-hour usage of natural gas during a year, and (for LDCs located in the Northeast) typically occurs during the winter heating season. LDCs use peak day requirement projections for planning purposes to ensure that enough supply capacity is available to meet demand and maintain reliable service to firm customers on the coldest days of the year. Because LDCs must be able to maintain firm deliveries of natural gas to retail customers on even the coldest day of winter, even if that coldest day reaches historically low temperatures, the peak day requirement is necessarily very conservative.

10. I have analyzed the forecasted peak day requirements of PSE&G, SJG, Elizabethtown, UGI Utilities, UGI Central Penn Gas, and PECO through 2020. A forecast through 2020 may seem to be a short period given the time necessary to permit, construct, and place an interstate pipeline in service. However, the 2020 forecast is appropriate because it reflects a reasonable time period in which an LDC could identify and procure capacity resource needs and alternatives. The peak day forecasts I examined show that these LDCs have stable loads with little forecasted growth. At this time, there is no evidence to suggest that these LDCs will experience any sudden or dramatic changes in these usage trends beyond 2020.

11. I have also reviewed the means by which PSE&G, SJG, Elizabethtown, UGI Utilities, UGI Central Penn Gas, and PECO presently serve their peak day requirements. This information is included in a series of 2016 filings made by each of these LDCs before their respective state regulators.² Through a mix of firm capacity on existing interstate pipelines,

² See, *In the Matter of Pub. Serv. Elec. & Gas Co.'s 2016/2017 Annual BGSS Commodity Charge Filing for its Residential Gas Customers Under its Periodic Pricing Mechanism and for Changes in its Balancing Charge*, Docket No. GR16060486 (N.J. Bd. Pub. Utils.); *In The Matter of The Petition of S. Jersey Gas Co. to Revise the Level of its Basic Gas Supply Service ("BGSS") Charge and to Revise the Level of its Conservation Incentive*

seasonal storage and liquefied natural gas (“LNG”) supplies, each LDC has natural gas supply service that is at or nearly at 100 percent of that LDC’s peak day requirement through 2020. I have not seen any evidence at this point suggesting that a continuation of each of the LDCs existing natural gas supply resources will become a challenge after 2020.

12. In the table below, I summarize my analysis of the state regulatory filings by PSE&G, South Jersey Gas, Elizabethtown Gas, UGI Utilities, UGI Penn, and PECO:

	PSE&G			South Jersey Gas			Elizabethtown Gas		
	Peak Day Requirement ———— (Dth) ————	Total Gas Supply	Percent of Total (%)	Peak Day Requirement ———— (Dth) ————	Total Gas Supply	Percent of Total (%)	Peak Day Requirement ———— (Dth) ————	Total Gas Supply	Percent of Total (%)
2015 - 2016	3,075,400	3,072,400	100%	n.a.	n.a.	n.a.	189,820	397,820	210%
2016 - 2017	3,089,600	3,074,500	100%	512,891	554,755	108%	285,070	402,610	141%
2017 - 2018	3,113,200	3,075,900	99%	520,555	564,755	108%	288,440	423,890	147%
2018 - 2019	3,141,000	3,078,500	98%	528,351	564,755	107%	n.a.	n.a.	n.a.
2019 - 2020	3,181,100	3,079,900	97%	536,280	564,755	105%	n.a.	n.a.	n.a.
	UGI Utilities			UGI Penn			PECO		
	Peak Day Requirement ———— (Dth) ————	Total Gas Supply	Percent of Total (%)	Peak Day Requirement ———— (Dth) ————	Total Gas Supply	Percent of Total (%)	Peak Day Requirement ———— (Dth) ————	Total Gas Supply	Percent of Total (%)
2015 - 2016	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2016 - 2017	827,320	812,343	98%	208,303	208,303	100%	802,834	720,017	90%
2017 - 2018	844,804	828,120	98%	209,752	209,187	100%	n.a.	n.a.	n.a.
2018 - 2019	862,288	843,288	98%	211,201	209,957	99%	n.a.	n.a.	n.a.
2019 - 2020	879,772	858,456	98%	212,650	210,727	99%	n.a.	n.a.	n.a.

Table 1. LDC Forecast Peak Day Requirement and Total Natural Gas Supply

13. I have also prepared a chart based on information compiled by industry consultants showing the average annual utilization of existing interstate natural gas pipelines that have historically transported natural gas to New Jersey, including Tennessee Gas Pipeline (“Tennessee”), Transcontinental Gas Pipeline (“Transco”), and Texas Eastern Transmission

Program (“CIP”) Charges for the Year Ending Sept. 30, 2017, Docket No. GR16060483 (N.J. Bd. Pub. Utils.); In The Matter of The Petition Of Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas To Review Its Periodic Basic Gas Supply Serv. Rate, Docket No. GR16060485 (N.J. Bd. Pub. Utils.); In Re: UGI Utilities, Inc. 1307(f) Annual Purchased Gas Cost Filing 2016, Docket No. R-2016-2543309 (Pa. Pub. Util. Comm’n); In Re: UGI Penn Gas, Inc. 1307(f) Annual Purchased Gas Cost Filing 2016, Docket No. R-2016-2543311 (Pa. Pub. Util. Comm’n); and In Re: PECO Purchased Gas Cost No. 33 Filing Effective Dec. 1, 2016, Docket No. R-2016-2545925 (Pa. Pub. Util. Comm’n).

System (“Texas Eastern”). Specifically, the data shown below are culled from a 2013 Black & Veatch publication entitled, “Has Emerging Natural Gas Shale Production Affected Financial Performances of Interstate Pipelines?”³ The data show that the annual average utilization rates of these pipelines has significantly declined over the past few years.

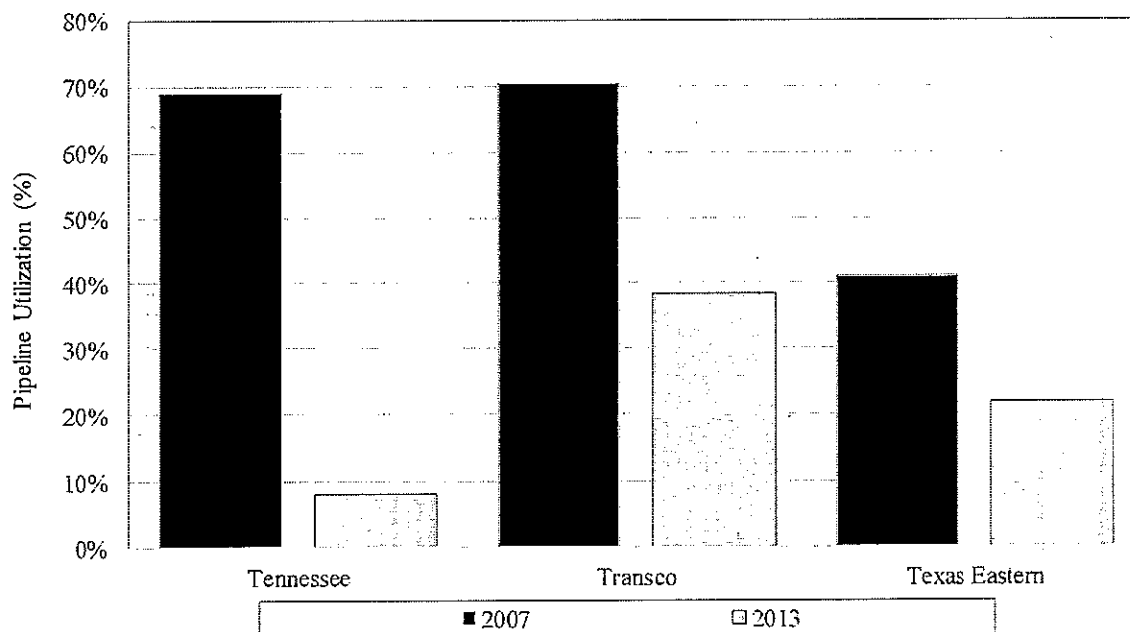


Figure 1. Average Annual Utilization of Natural Gas Transportation Pipelines

14. While Tennessee, Transco, and Texas Eastern have historically transported natural gas from the Gulf Coast region, each of these pipelines has interconnections with other pipelines that directly serve the shale gas regions that supply much of the natural gas used in the Mid-Atlantic region.

³ The publication is available at: Denny Yeung, Black & Veatch, *Has Emerging Natural Gas Shale Production Affected Financial Performances of Interstate Pipelines?* (2013) <http://by.com/energy-strategies-report/august-2013-issue/has-emerging-natural-gas-shale-production-affected-financial-performances-of-interstate-pipelines>.

15. My review of state regulatory filings has also revealed that PSE&G has turned back 145,000 Dth/d of firm capacity in the past year.⁴ Not only is this firm capacity now available to other LDCs, but it also demonstrates that the region currently has adequate alternative means to obtain natural gas supply. In my experience, an LDC that is concerned about its ability to access gas supplies does not turn back such substantial capacity.

⁴ PSE&G, Initial Filing Motion, Supporting Testimony and Tariff Modifications at Item 18, §3, *In the Matter of Pub. Serv. Elec. & Gas Co.'s 2016/2017 Annual BGSS Commodity Charge Filing for its Residential Gas Customers Under its Periodic Pricing Mechanism and for Changes in its Balancing Charge*, Docket No. GR16060486 (N.J. Bd. Pub. Utils. June 1, 2016).

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PennEast Pipeline Company, LLC

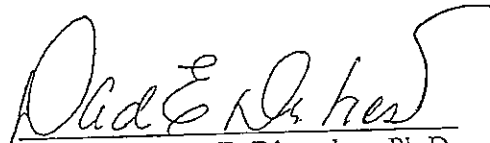
State of Louisiana
Parish of East Baton Rouge

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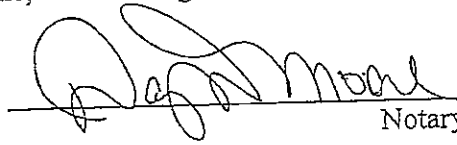
AFFIDAVIT OF DAVID E. DISMUKES, PH.D.

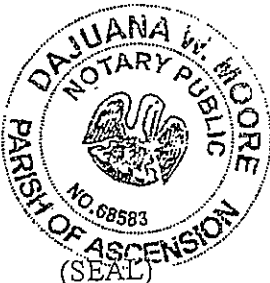
I, David E. Dismukes, being duly sworn, depose and state that the contents of the foregoing Affidavit on behalf of the New Jersey Division of Rate Counsel, are true, correct, accurate and complete, to the best of my knowledge, information and belief.

THIS DOCUMENT NOT
PREPARED BY
THE UNDERSIGNED NOTARY
ATTESTING TO SIGNATURES ONLY


David E. Dismukes, Ph.D.

SUBSCRIBED AND SWORN TO before me, the undersigned Notary Public, this 9th
day of September 2016.


Notary Public
Dajuana W. Moore, Notary Public No. 68583



My Commission Expires:

"Commissioned for Life"

17590 Perkins Rd. Ste A Baton Rouge
(Address of Notary) LA 70810

Fossil Generators' Reveal Their True Objections To Retaining Nuclear Plants in their Federal Complaints Challenging New York and Illinois State Action

Electricity prices will be higher if nuclear units retire, hundreds of millions of dollars higher. This is the real reason why the fossil generators are so adamantly opposed to programs that value the environmental and fuel diversity aspects and that will help preserve clean, reliable, baseload nuclear power plants. Their court filings in the NY and IL litigation demonstrate their objection:

[Generator Complaint in NY District Court](#) [Coalition for Competitive Electricity v. Zibelman](#)

- ❖ “[B]y artificially retaining the otherwise uneconomic nuclear units, the PSC is using the ZEC subsidy to exert a large depressive effect on energy and capacity prices, which one group of experts estimated at \$15 billion over 12 years.” Complaint ¶ 47.
- ❖ “In anticipation of significant disruption to . . . monthly capacity market results, financial over-the-counter capacity markets that trade in advance of the FERC-sponsored auctions have already shown dramatic price declines as a result of the ZEC Order.” Complaint ¶ 4.
- ❖ “A large price-taking unit significantly decreases energy-market prices paid to competitors, as it injects large quantities of energy into the grid, which lowers market-clearing prices.” Complaint ¶ 34.
- ❖ “If the ZEC program goes into effect as planned . . . the subsidies will . . . caus[e] the auctions to return significantly lower prices.” Complaint ¶ 74.
- ❖ “The clearing price of the auctions will . . . be artificially suppressed well into the next decade [as a result of the ZEC Order].” Complaint ¶ 87.

Generator Complaint in IL District Court
Electric Power Supply Associate v. Star

- ❖ “[T]he ZEC program will fundamentally distort the operations of FERC-regulated wholesale energy and capacity markets, conservatively costing unsubsidized generators an estimated \$386 million to \$529 million in PJM capacity auction revenue just for the 2020/21 delivery year. “ Preliminary Injunction Motion Memorandum at 18-19.
- ❖ “Through their continued participation in the FERC-jurisdictional markets, the [nuclear] units will artificially depress prices in the wholesale energy and capacity markets below the level established by FERC.” Id. at 19.
- ❖ David DeRamus, Plaintiff’s expert, estimates the ZEC program will reduce net revenue for suppliers in the PJM energy market (both generators and those exporting into the market) by approximately \$244 million. DeRamus Decl. ¶ 60.

External Sender: Use caution with links/attachments.

Here's what they had to say in the press at the time:

PSEG Warns Energy Tax to Subsidize Power Plants (A3442) Will Cost New Jersey Residents and Businesses

Will lead state down a road of proven failure, result in lost jobs, new customer surcharges and undermine efforts to conserve energy

Jan 06, 2011, 16:29 ET from Public Service Enterprise Group (PSEG)

TRENTON, N.J., Jan. 6, 2011 /PRNewswire/ -- PSEG today announced its strong opposition to legislation (A3442) that will subsidize the construction of new power plants through guaranteed long-term payments.

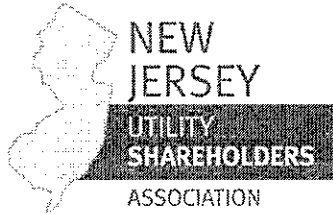
"This is essentially an energy tax that will cost New Jersey residential and business customers more than a billion dollars," said Anne Hoskins, Senior Vice President, Public Affairs and Sustainability, PSEG.

"Customers have been put through this before with disastrous results for customers," Hoskins warned. In the 1970's, government required New Jersey's utilities to enter into long-term contracts with power generators and set prices and production targets for the energy industry. That resulted in billions of dollars in excess payments by consumers. Over the next six years, PSE&G customers alone will pay more than \$1 billion for the remaining costs of these long-term contracts. Atlantic City Electric recently received approval to raise its customers' bills by roughly five percent to recover the costs of its out-of-market contracts.

"The resulting customer surcharges will have long-term impacts," Hoskins said. "Subsidies are a slippery slope and will drive away other non-subsidized private investment in New Jersey."

"This bill is trying to fix a problem that does not exist," added Hoskins. Since 2007, New Jersey's wholesale electric markets have spurred significant investment in new generation, environmental retrofits, upgrades on existing generation, and investments to reduce electric usage through demand response.

"These investments totaled billions of dollars -- all made at the risk of private investors, not customers. PSEG alone has invested approximately \$1.5 billion in generating plants in New Jersey since 2007," Hoskins said.



117 North Church Street • Moorestown, NJ 08057 • (856) 840-4187 • NJUSA.US

December 20, 2017

To: Chairman Bob Smith
Chairman Wayne DeAngelo
Members and Staff of the Senate Energy and Environment Committee and
the Assembly Telecommunications and Utilities Committee.

From: Karen D. Alexander, President, New Jersey Utility Shareholders Association

Please accept my regrets for not being able to attend the joint committee hearing in person and kindly enter the below statement into the record. This statement augments the one submitted on December 4, 2017, and expresses our support for S-3560/A-5330.

**Statement of Karen D. Alexander
President, New Jersey Utility Shareholders Association
Submitted to the Senate Environment and Energy Committee and the
Assembly Telecommunications and Utilities Committee in
Support of S-3560/A-5330—"Establishes Nuclear Diversity Certificate Program."**

NJUSA is a not-for-profit association of New Jersey residents who are investors in one or more of the publicly traded entities that have a subsidiary providing utility service in New Jersey. Our members have chosen to join NJUSA to learn more about and advocate with other interested New Jersey utility investors on issues that can affect the value of their investments. Since they are not residents, institutional investors are not eligible to be NJUSA members.

NJUSA members are not a monolith. They come from different regions of the state, are of all races, creeds, ages and socioeconomic status. What our members have in common are these three things: 1) they are all New Jersey residents; 2) they are all utility ratepayers and 3) they are all investors in companies with New Jersey utility subsidiaries.

When NJUSA speaks on behalf of its members, we do so with respect to the potential impact of the public policy under consideration on all its members, not with respect to the impact on any one member or group of members. NJUSA's concern is always with the overarching potential impact and precedent the policy underlying government actions could pose to our members. This statement represents the interests of all NJUSA members who, first and foremost, are New Jersey citizens and like all other New Jerseyans need safe, reliable and affordable electric power. As residents of the Garden State, our members want and deserve an energy future that is safe, reliable, affordable, characterized by diverse sources and environmentally responsible. To achieve those ends, New Jersey will continue to need nuclear power—a source that provides nearly half of the state's electricity. It is for this reason that NJUSA supports S-3560/A-5330 and urges you to vote to release them at your December 20, meeting.

d b

You will hear from many interested parties on this legislation. As you consider their points of view, please also consider the following.

1. **Renewable energy is not a realistic substitute given the amount of baseload generating capacity that would be lost if the Salem and Hope Creek units are retired.** New Jersey is a high achiever with respect to renewable energy and there is more that can and should be done in that regard. But renewables cannot yet meet our reliability needs and they present their own financial challenges. It is simply not realistic to expect New Jersey to replace so much of its electric generating capacity with renewable resources anytime soon.
2. **Reliance on out-of-state generation is neither environmentally nor financially sound.** Those who are willing to roll the dice and accept whatever decisions PJM might make regarding out-of-state resources that would need to be dispatched to fill the capacity deficit that will come from the premature retirements, are accepting the reality that under that scenario, New Jersey will be vulnerable to generation and transmission costs outside of its control. New Jersey would become increasingly reliant on out-of-state resources, possibly including coal-fired plants, to meet its energy needs. Continued operation of the Salem and Hope Creek plants will sustain New Jersey's energy independence and help achieve the State's goal to reduce its carbon emissions.
3. **The Salem and Hope Creek facilities are critically important New Jersey assets.**
 - **They have safely and reliably supplied needed electricity to New Jersey for over a generation.** While PSEG is the principal owner, these are facilities in which all New Jerseyans have a stake, and they are critical to the State's economy and its environment.
 - **They are a source of good paying, stable jobs in areas of the State where comparable jobs are not readily available.** The rest of the State may need the power, but the communities surrounding these plants need the power, the jobs and the ancillary benefits that accrue to the local economies. The economic burden that could result from the premature retirement of the facilities will negatively affect local families and businesses. Who would the retirements benefit? Certainly not the host communities or their residents. Neither would the rest of the state that has depended on these reliable sources of electricity for decades.
 - **They are part of a diverse mix of electric energy generation.** New Jersey cannot afford to rely on only one source of energy. It is in the State's best interest to continue its reliance on baseload generation from nuclear and natural gas-fired plants and to continue its pursuit of renewable resources. No one source can provide the optimum solution.
4. **Finally, and most importantly, the sponsors of S-3560/A-5330 not only have taken the above into account, but also have created a measured and reasonable strategy to enable the continued operation of the State's nuclear assets with strong ratepayer protections and regulatory oversight.**

Under the legislation:

- BPU will establish the eligibility rules for the program;
- BPU will establish the need for access to the program and rank eligible plants through an initial assessment of the company's internal finances to determine financial need with an update of the assessment every three years;

- BPU will assure that there is no “double-dipping” by reducing payments to the plants by any amounts received by federal, regional or state governmental entities;
- BPU will obtain company assurances that, absent the payments, pre-mature retirement(s) would ensue and is authorized to withhold payment if it determines the participating plant(s) is not operating; and
- BPU may adjust the payments if it determines that a lower than anticipated amount is needed to maintain operations.

No one could have predicted the economic circumstances that now face half of America’s nuclear power facilities. S-3560/A-5330 map out a reasonable approach to addressing what could become a crisis for the State absent your intervention. Thank you for your willingness to resolve this important issue.

On behalf of our members, I strongly urge you to support the bill. We appreciate the opportunity to share our views.

Sincerely yours,

Karen D. Alexander

**Before the New Jersey State
Joint Assembly Telecommunications & Utilities (ATU) and Senate Environment
& Energy (E&E) Committees
Testimony of Dr. Paul Stockton
On Senate No. 3560/Assembly No. 5330**

December 20, 2017

Summary

Good morning. My name is Paul Stockton, and I am the Managing Director of Sonecon LLC, a security and economic advisory firm in Washington, DC. I appreciate the opportunity to comment on the value of a diverse generation mix and the importance of existing nuclear power stations to the citizens of New Jersey.

I have spent much of my career working on issues related to the protection of critical public and private infrastructure, including the Bulk Power System (BPS). From June 2009 until January 2013, I served as the Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs. In that position, I was responsible for Defense Critical Infrastructure Protection and led the creation of the Department's Mission Assurance Strategy. I also served as the Domestic Crisis Manager for the Department of Defense (DOD) and was responsible for Defense continuity of operations. I was the principal civilian advisor to the Secretary of Defense for providing Defense support to the Federal Emergency Management Agency, the Department of Energy (DOE) and other Federal departments in Superstorm Sandy, Hurricane Irene, and other disasters. In addition, I was responsible for developing and overseeing the implementation of DOD security

policy in the Western Hemisphere, including U.S.-Canada cooperation on Defense-related issues concerning energy sector resilience. From January 2012 until January 2017, I served as a Special Government Employee for the Department of Defense, and helped conduct studies to strengthen deterrence of cyberattacks, counter insider threats, and meet other infrastructure resilience challenges. I have also written extensively about the dangers that threaten energy sector resilience.¹

I recommend maintaining the diverse mix of energy generation on which New Jersey has historically relied, including taking action to strengthen at-risk nuclear generation, which is one of the most dependable sources of baseload generation available today. Nuclear power plants can operate for many months between refueling operations, making them an invaluable element of grid resilience and, correspondingly, of national security.

A December 2017 report by the North American Electric Reliability Corporation (NERC) emphasized the resilience value of nuclear power and other generation assets that have stored, on-site fuel. NERC's report, the *2017 Long-Term Reliability Assessment*, noted that "Reliable operation of the BPS requires dependable capacity with fuel assurance to address consumer needs, impacts of

¹ In 2016, I authored *Superstorm Sandy: Implications for Designing a Post-Cyber Attack Power Restoration System*, published by Johns Hopkins University Applied Physics Laboratory; *Electric Grid Protection Handbook II, Volume 1: Resilient Fuel Resources for Power Generation in Black Sky Events*, published by the Electric Infrastructure Security Council; and co-authored the Homeland Security Advisory Council's *Final Report by the Cybersecurity Subcommittee: Incident Response*. I am also widely published on other issues of homeland security, national defense and infrastructure resilience, including *Resilience for Black Sky Days: Supplementing Reliability Metrics for Extraordinary and Hazardous Events*, prepared for the National Association of Regulatory Utility Commissioners.

extreme weather conditions, and sudden disturbances on the system.”² In particular, the study urged consideration of “the reliability and resilience attributes provided by coal and nuclear generation to ensure that the generation resource mix continues evolving in a manner that maintains a reliable and resilient BPS.”³

I concur with these findings and recommendations. Preserving energy diversity is critically important to mitigating extreme threats to the Bulk Power System. These threats are exacerbated by the growing dependence of the electric generation sector on a single fuel -- natural gas. In its earlier December 2016 study, NERC pointed out that “reliance on a single fuel increases vulnerabilities, particularly during extreme weather conditions[.]”⁴ New Jersey itself has experienced severe weather events in recent years, including Superstorm Sandy in 2012, and the 2014 Polar Vortex that crippled much of the northeast.⁵ NERC emphasized the importance of fuel diversity in the Nation’s electricity supply in its November 2017 report⁶ which found “[t]his growing interdependence of the natural gas and electric infrastructure has resulted in new operational and planning reliability challenges,” and recommends that regulators “consider fuel diversity as they evaluate electric system plans and establish energy policy objectives.” NERC’s *2017 Long-Term Reliability Assessment* reinforced these findings, and urged policy

² *2017 Long-Term Reliability Assessment*, The North American Electric Reliability Corporation, December 2017, p. 6 (“2017 Long Term Reliability Assessment”).

³ *Id.*

⁴ *2016 Long-Term Reliability Assessment*, The North American Electric Reliability Corporation, December 2016, p. vii

⁵ In the wake of the 2014 Polar Vortex “[a]lmost all of the regions’ nuclear power remained operational throughout the crisis. Hon. Tom Ridge, *Keeping Nuclear in the Nation’s Energy Mix*, The Philadelphia Inquirer (Aug. 9, 2017).

⁶ “*Special Reliability Assessment: Potential Bulk Power System Impacts Due to Severe Disruptions on the Natural Gas System*” The North American Electric Reliability Corporation, November 2017.

makers and regulators to “consider the results and conclusions of industry studies that evaluate the impact of natural gas disruptions to the BPS when evaluating infrastructure requirements.”⁷

Furthermore, the power grid and fuel supplies for power generation are potential targets for adversaries such as Russia, China and North Korea, which may seek to disrupt United States defense capabilities and our nation’s economy by attacking the critical infrastructure on which the public and our military bases rely. For example, the DOD’s Mission Assurance Strategy emphasizes that “The Department of Defense’s ability to ensure the performance of its Mission-Essential Functions (MEFs) is at growing risk. Potential adversaries are seeking asymmetric means (*i.e.*, indirect means designed to avoid our own military strengths) to cripple our force projection, warfighting, and sustainment capabilities by targeting critical Defense and supporting civilian capabilities and assets -- within the United States and abroad -- on which our forces depend.”⁸

Preserving Nuclear Generation is Essential to State and National Security

In my work with DOD and DOE, it has become clear that preserving nuclear generation is a national security priority. This conclusion is supported by three leading authorities. First, the Energy Futures Initiative, a new group led by former Energy Secretary Ernie Moniz, released a report in August 2017 entitled “The U.S. Nuclear Energy Enterprise: A Key National Security Enabler.”⁹ Among the key

⁷ 2017 Long-Term Reliability Assessment, p. 6.

⁸ Department of Defense, *Mission Assurance Strategy*, April 2012, p. 1, http://policy.defense.gov/Portals/11/Documents/MA_Strategy_Final_7May12.pdf.

⁹ Energy Futures Initiative, Inc., *The U.S. Nuclear Energy Enterprise: A Key National Security Enabler* (August 2017).

findings of the report is that existing nuclear power plants and their suppliers play a fundamental role in U.S. national security, and that “meeting national security priorities requires a robust nuclear energy industry.”¹⁰ The report recommends that “state policies affecting the design of organized electricity markets . . . [should] appropriately value attributes of nuclear electricity including supply diversity.” In addition, in a recent article,¹¹ former Governor of Pennsylvania and Secretary of Homeland Security, Tom Ridge, urged that the United States “strengthen and preserve our nation’s baseload nuclear fleet, thus protecting our national security while ensuring a diverse, resilient energy grid.” Finally, retired Rear Admiral Michael Hewitt, recently called for policymakers to “....elevate the conversation to talk about nuclear power as an element of national power.”¹² I agree with these security experts, and offer that the bill will help preserve an important element of New Jersey and national security.

Threats to the Bulk Power System

I have identified three specific risks to the electric system: First, reliance on a single fuel creates the danger of “common-mode failures” where a lack of natural gas incapacitates multiple generators at the same time. Second, such failures could help create “black sky” power outages, which entail outages lasting a month or more over multiple regions of the United States.¹³ Third, rising natural gas-electric interdependencies create dangers of mutually-reinforcing failures.

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ Paul Stockton, *Resilience for Black Sky Days: Supplementing Reliability Metrics for Extraordinary and Hazardous Events*, at 3, National Association of Regulatory Utility Commissioners (2014).

Increased dependence on a single type of fuel heightens the risks of common mode failures: that is, the danger that a single attack vector (especially via cyber means) could enable an adversary to disrupt fuel supplies for power generation across major portions of the United States. NERC's *2017 Long-Term Reliability Assessment* warns that "as more areas are dependent on natural-gas-fired generators, reliability hinges on adequate arrangements for fuel and access to it,"¹⁴ and that natural gas is "vulnerable to supply and transportation disruptions."¹⁵ A significant interruption of the natural gas supply available for electric generation can dramatically reduce the supply of electricity available to serve load. For example, a large-scale disruption of a natural gas pipeline would prevent that pipeline from delivering natural gas to the generators it serves. It would also incapacitate any downstream pipelines dependent on it as a source of natural gas. Because natural gas is delivered close in time to its use as a fuel for electric generation, the system would have little time to respond to and compensate for the loss of a pipeline. Preserving a diverse generation mix that relies on multiple sources of fuel is essential to reducing the risk these potential common mode failures pose to the power grid.

Moreover, a black sky outage would inflict immense disruption on national security, the U.S. economy, and public health and safety. Many critical infrastructure systems and facilities have backup power generators and stored on-site fuel to keep them operating for a few days in a limited grid outage. However, the extensive length and scope of power outages in a black sky event would soon produce failures in emergency power assets and the infrastructure

¹⁴ *2017 Long-Term Reliability Assessment*, p. 30.

¹⁵ *Id.*, p. 18.

systems that rely on them. Blackouts of this severity would therefore cause cascading failures across multiple critical infrastructure sectors. As highlighted in recent hurricane events, generators will quickly break down through overuse. Demand for replacing them in a wide-area outage will rapidly outstrip available supplies, given the vast number of facilities that will require such replacements. Moreover, on-site fuel supplies for emergency generators will quickly be depleted. Massive, multi-sector requirements for fuel resupply will emerge. Contractors responsible for sustaining resupply operations will be unable to meet these requirements, as transportation systems, refinery operations, and other systems on which these contractors depend will also be disrupted in a black sky outage. Hospitals and other critical facilities and services would exhaust their ability to rely on backup power. Food manufacturing and distribution networks would cease to function. Other critical infrastructure sectors would also likely collapse. For example, water, wastewater, and cellular systems rely on a functioning power grid and are not currently prepared for such an event. Finally, national defense installations that depend on grid-supplied power would begin to fail. Domestic military facilities can operate without power for short periods of time, but most are not designed to be independent of the electric grid for extended durations.

Finally, as natural gas has become an increasingly important fuel for electric generation, natural gas pipelines have also come to rely on electricity to function. Key components of natural gas pipeline systems, including the compressors and industrial control systems that keep gas flowing to power generators and other users, are increasingly reliant on electric power. Natural gas pipeline systems

need compression pumps to sustain the flow of natural gas. Historically, these compressors were fueled with natural gas taken from the pipelines themselves. However, in many regions of the United States, these compressors are being replaced by variable speed electric-powered units to reduce onsite methane emissions and increase compressor efficiency. NERC warns that “the pipeline system can be impacted by events that occur on the electric system (e.g., loss of electric motor-driven compressors), which is compounded when multiple plants are connected through the same pipeline or storage facility.”¹⁶

Black sky outages could interrupt the flow of electricity to these units on a very large scale, and (in a classic case of spiraling effects) magnify those outages by disrupting natural gas deliveries to power generators essential for power restoration.¹⁷ These growing interdependencies create risks of cascading, mutually-reinforcing failures across both the electricity and oil and natural gas energy subsectors.¹⁸

Conclusion

Maintaining diversity across the electric generation fleet will help mitigate the substantial risks of natural and man-made disruption to the electric system that I have described. Maintaining nuclear power will help to make New Jersey and the nation more energy secure. Thank you for the opportunity to provide this testimony.

¹⁶ *Id.*, p. 30.

¹⁷ Electric Infrastructure Protection (EPRO) Handbook II (Vol 1 – Fuel), July 18, 2016, at 24, http://www.eiscouncil.com/App_Data/Upload/149e7a61-5d8e-4af3-bdbf-68dce1b832b0.pdf.s

¹⁸ *Id.*, p. 21.



December 20, 2017

TESTIMONY

SENATE, NO. 3560 & ASSEMBLY, NO. 5330
STATE OF NEW JERSEY
217th Legislature

Re: **Nuclear Diversity Certificate Program**

An Act concerning nuclear energy and supplementing P.L. 1999, c.23

From: Vinod O. Menezes, President & CEO, Atlantic Subsea, Inc.

SUMMARY:

Atlantic Subsea, Inc. (ASI) is a marine infrastructure firm providing marine services to PSEG's Salem and Hope Creek Generating Stations. It was in 1995, that PSEG gave us our first break in business to clean and service their intake structures on its waterfront. This first break was a part of our incubation period. It created an opportunity for us to grow and provide even more marine services in the state of New Jersey. We now employ approximately 100 union employees. Our annual maintenance contract with these two nuclear plants have created a substantial growth in jobs. These union jobs have had a significant impact on various communities in New Jersey.

What Does This Mean?

Just like us there are 1082 other vendors with similar stories working at these 2 stations. This is a big multiplier to take lightly. In the marine field, we are assisted by associated support services. During outages or special projects, we move large equipment by road and on the Delaware river. We move big water rigs, barges and crane barges. To facilitate these mobilizations, we depend on river services in way of boats, marinas and tug boats. Our barges and rigs need special services and modifications. Even though we directly employ 70 to 80 journeymen at the stations, our support services create jobs in our area and keep the business ecosystem thriving. Loss of these two plants will have a devastating effect on the river services depressing the local economies.

The Nuclear Environment:

Working in the nuclear environment is different. Safety, security and engineering standards are higher than standard industry standards. In our scope of services, our equipment is specially modified to comply to these higher standards. Just like us, vendors invest in specialized equipment



ATLANTIC SUBSEA, INC.

TESTIMONY

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with cost recovery through long term contracts. Losing recovery opportunities will have a serious negative effect on the vendors. Moreover, certain specialty materials and equipment designed specifically for the Nuclear industry cannot be used in the general industry. This creates tremendous loss in asset values and inventories.

CONCLUSION:

Closing of Salem and Hope Creek Stations will have a devastating effect in South Jersey. The business ecosystem around these 2 plants is currently thriving. Jobs are constantly being created and businesses are continuously thriving as they support the plant operations.

Our story is just one of the 1082. Hence, there are many more voices with the same refrain – *these plants cannot close.*

A handwritten signature in black ink, reading 'Vinod O. Menezes'.

Vinod O. Menezes
President & CEO



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December 20, 2017

To: Senate Environment and Energy Committee & Assembly Telecommunications and Utilities Committee
From: Eric Blomgren, Associate Director of Government Affairs, New Jersey Gasoline, Convenience Store, Automotive Association

Re: OPPOSE S-3560/A-5330

The New Jersey Gasoline, C-Store, Automotive Association (NJGCA) represents nearly one thousand independent small business owners in the motor fuel retail, convenience store, and auto repair trades. These small businesses struggle every day to keep their doors open and keep people employed.

Our members are all in retail and service. This means their success is due entirely to the public patronizing them. These businesses all work on extremely tight margins and are very sensitive to even the slightest increase in cost. This bill would increase their annual electricity bill by as much as 3%, and with no direct benefit to them (unlike with an increase dedicated to greater resiliency, for example). In fact, a huge portion of the power generated at these now-subsidized plants will be used by consumers in other states, who will not be sharing in the burden of this subsidy. Cost increases for our members inevitably means cost increases for consumers.

Such an increase in costs would be coming at a time of great uncertainty for business owners in this state. Federal tax reform in its current state threatens to increase the tax burden many small business owners face on their income taxes. Meanwhile new wage mandates here in New Jersey would increase the cost of labor by as much as 75%. Throw an increase in utility costs on top of that and no doubt it will be too much for some business owners to bear.

This subsidy would also further constrict the economy. A \$40 increase to every consumer may not seem like too much, but in the aggregate if it forces them to buy several fewer cups of coffee, then our members suffer even further.

The timing of this legislation is also a concern. If in theory it will not take effect for two to three years (if PSEG estimates are accurate and not being inflated), then why should this bill be rushed through just a few days after being introduced? We have months if not years before these plants will even begin to stop being profitable.

Our members can only wish that if they were faced with economic struggles the government would spring into action and find them a subsidy. NJGCA opposes this bill's effort to transfer their precious income to a multi-billion-dollar corporation.

I ask that you oppose it.

Thank you.



AMERICANS FOR PROSPERITY®

NEW JERSEY

Wednesday, December 20, 2017

Dear Chairmen and Respective Members of the Senate Environment and Energy Committee and the Assembly Telecommunications and Utility Committee:

On behalf of more than 137,000 Americans for Prosperity activists in New Jersey, I write to you in opposition to **S-5360/A-5330**, which creates the **Nuclear Diversity Certificate program** for New Jersey's nuclear power plants.

New Jersey deregulated the energy industry in 1999, and the current market is starting to work, lowering electricity prices, increasing competition and giving a much-needed boost to the state economy at a time when it is sorely needed.

While there have been insinuations that one nuclear plant is at risk of being shut down, PSEG's nuclear plants continue to be profitable and PSEG has been able to increase dividends to its shareholders each year. The risk for premature retirement of the nuclear plans has not been supported with facts and evidence.

The rushed move to create, introduce, and pass S-5360/A-5330 in a lame duck session without the necessary scrutiny shows a lack of transparency and a lack of concern for how this legislation will impact New Jersey's families and job creators. New Jersey has a process and procedure in place to address complex issues. It is not appropriate or fair to penalize residents and business with a new tax, all to help a business that seems to be doing just fine on its own.

Stefanie Brand, director of the state's Division of Rate Counsel [calculates the cost](#) of this new subsidy to be \$41 per year for residential customers and up to \$1 million per year for large business customers – businesses that provide jobs and services for the people of the state. This is a harmful move for the Garden State's business climate and will make New Jersey less competitive.

This new multimillion dollar subsidy would hurt the economy and the electricity market in the long run. The Nuclear Diversity Certificate program will make it more difficult for commercial and industrial customers to stay competitive. The legislation will also have the effect of deterring future investment in new power sources. In short, S-5360/A-5330 rigs New Jersey's electricity market to the benefit of politically-favored special interests over the interests of taxpayers who benefit from a competitive market which provides affordable, reliable energy.

This broad negative impact to the economy is not justified, as no independent studies to determine the financial health of the operations of PSEG have been conducted. Rather than embracing a corporate welfare policy that would harm the marketplace and raise costs, the legislature should embrace a long-term view of this complex issue and let the Board of Public Utilities and PJM interconnection do their jobs in assuring the reliability of the state electricity grid.

New Jersey should continue to make intelligent decisions about our electricity system and not subject ourselves to whims of crony industries. Taxing businesses and families for electricity use of one source of electricity does not make sense. **On behalf of Americans for Prosperity and taxpayers across the state, I respectfully urge you to please vote "No" on S-5360/A-5330, as handing out subsidies to nuclear power plants is not smart public policy.**

If I can be of any assistance, please do not hesitate to reach out directly at 862-229-4953. Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink that reads "Erica L. Jedynek". The signature is written in a cursive, flowing style.

Erica L. Jedynek
New Jersey State Director



TESTIMONY BEFORE
SENATE ENVIRONMENT & ENERGY COMMITTEE
AND
ASSEMBLY TELECOMMUNICATIONS & UTILITIES
COMMITTEE

December 20, 2017

Trenton, NJ

By: Marlene Z. Asselta, President
Southern New Jersey Development Council
900 Route 168 Suite D-4 Turnersville, NJ 08012
(856) 228-7500

Good Morning. My name is Marlene Asselta, I am the President of the Southern New Jersey Development Council and I come here today to speak in support of S3560/A5330.

As a business economic development organization comprised of over 300 mid to large size businesses, the Southern New Jersey Development Council (SNJDC) and its members understand that New Jersey needs nuclear energy – both its power generation and its economic generation.

New Jersey's electricity generation is dependent on nuclear, which produces nearly half of the state's power. The PSE&G Nuclear Salem and Hope Creek generating stations represent 37%, or 28 billion kilowatt hours – enough power for 2.7 million households – doing so reliably 24/7. Were those plants to close, New Jersey would struggle to account for the lost generation and would have to rely on out-of-state generators – at market prices.

Nuclear power is also a critical source of zero-emissions energy and a reliable component in a diverse energy portfolio thus helping to meet the state's Energy Master Plan goals. Nuclear plants provide more than 90% of New Jersey's non-air-polluting energy and no amount of renewable energy from wind farms or solar fields, both of which our organization steadfastly supports, will replace the state's energy needs should these plants close.

PSEG Nuclear is an irreplaceable part of the South Jersey economy. The Salem and Hope Creek stations support over 1,500 high-salary permanent jobs, another 1,000 contractor jobs for annual refueling outages, and another 1,000 indirect jobs, mainly in the struggling Salem County job market. PSEG spends nearly \$60 million annually, in New Jersey, for materials and services. PSEG also contributes tens of millions in state and local taxes and is a good corporate partner in the community donating to area food banks and its employees volunteering their time and serving as leaders in the community.

These are but a few points to consider in demonstrating the economic impact nuclear energy provides to South Jersey and the state.

A few days ago, we witnessed the mayhem of a power outage at a major international airport and the rippling effect throughout the air transportation.

system; beyond the inconvenience of passengers, the true economic impact has yet to be quantified.

We know the beneficial economic impact nuclear energy has on our state in keeping the lights on. The experts have testified as to the consequences of early retirement of New Jersey's nuclear power plants – increased costs for consumers, increased emissions, greater reliance on out-of-state electric generation to name a few. Do we really need to witness, first hand, the true economic impact of many unknowns we would face should such a critical component of our energy and economic generation go dark?

Voting in favor of S3560 and A5330 is voting in favor of sustained employment opportunities for South Jersey and a secure energy future for the state of New Jersey and region. I thank you and urge your favorable consideration of the legislation before you.



Krishna P. Singh Technology Campus, 1 Holtec Blvd., Camden, NJ 08104

Telephone (856) 797-0900

Fax (856) 797-0909

December 21, 2017

Senate Environment and Energy Committee:

Kevil Duhon- kduhon@njleg.org

Judith Horowitz - jhorowitz@njleg.org

Assembly Telecommunications & Utilities Committee:

Francisco Maldonado- fmaldonado@njleg.org

Richard Diaconu- rdiaconu@njleg.org

TESTIMONY SUPPORT LETTER

Dear Sir/Madam:

Holtec serves 52% of the US Nuclear Industry including PSEG's three plants in South Jersey.

We Supply Dry and Wet spent fuel storage equipment that is designed and manufactured at our New Advanced Manufacturing Division in Camden, NJ. We also Supply the Nuclear plants with heat transfer equipment that is designed and manufactured in Camden, NJ. We believe that New Jersey nuclear plants will be a major part of our business. Therefore, a shutdown will adversely affect our effort to meet our production goals and our concurrent effort to provide job opportunities for New Jersey residents.

Holtec International has done significant business with Public Service Electric and Gas (PSE&G) in providing manufactured products for PSE&G's Nuclear plants. Therefore, a shutdown of the Nuclear Plants will adversely affect current and future professional and manufacturing jobs. As you may know, we have recently commissioned our \$312 Million Technology Campus in Camden, NJ. We have pledged 400 jobs (and met the hiring commitment) and an increase to over a 1000 in the not-so-distant-future. A shut down of PSE&G nuclear assets will be a major set-back.

In addition, if financial strains were to push the South Jersey nuclear plants into early retirement, the economic and environmental consequences for New Jersey and its residents would include:

- **Higher electricity costs:** \$400 million more per year for New Jersey families and businesses;
- **Lower GDP:** A reduction of \$809 million in New Jersey's annual gross



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- domestic product;
- **Job losses:** 5,800 fewer jobs in New Jersey;
- **Reduced state revenue:** \$37 million less in state taxes; and
- **More air pollution:** 14 million tons of CO₂ and tens of thousands of tons of other pollutants each year, at total social and public health costs of \$733 million.

As one can readily see, Salem and Hope Creek are economic engines for their communities and the state. The Salem and Hope Creek Nuclear Generating Stations employ 1,400 people. The plants generate over \$800 million each year in economic value to the state, concentrated in these communities. In total, the plans support between 5,800 and 6,100 direct and secondary jobs that are important to the New Jersey economy.

In addition, these plants provide baseload power to the state. They run around the clock, every day, typically even under extreme weather conditions to provide reliable electricity to the state's homes and businesses. Their continued operation will keep electricity prices low.

From an Environmental point of view Nuclear energy provides almost 60 percent of the carbon-free electricity in the U.S. When nuclear plants close, their production is replaced by generators capable of running at all hours of the day. The replacement plants are typically fossil fuel plants. When Vermont Yankee closed in 2014, all of its electricity was replaced by natural gas and, as a result, New England's carbon emissions increased for the first time in over a decade.

New Jersey's nuclear plants are an important part of our nation's most *reliable and resilient* source of electricity. Like other sources of power, nuclear power plants traditionally have low forced and maintenance outage hours. This characteristic helps ensure that nuclear electricity generation is more resilient to disruptions and thus more reliably available.

We urge you to help make it possible for New Jersey's nuclear plants to remain in operation. They are important elements of New Jersey's economy and important to the environmental integrity of our state.

Very truly yours,

HOLTEC INTERNATIONAL

By: _____

PIERRE P. ONEID
SR. V.P. & CHIEF NUCLEAR OFFICER