APPENDIX

New Jersey Senate Environment and Energy Committee and Assembly
Telecommunications and Utilities Committee
Hearing on Clean Energy and Grid Modernization

Testimony of Kieran Tintle
Government Affairs, Jersey Central Power and Light

March 11, 2024

Chairman Smith, Chairman DeAngelo and members of the Senate Environment and Energy Committee and Assembly Telecommunications and Utilities Committee, thank you for the opportunity to provide testimony related to clean energy and grid modernization. We are thankful for the critical work you and your colleagues do to help us at Jersey Central Power & Light (JCP&L) provide safe and reliable electricity to our 1.1 million customers in New Jersey.

As you all well know, the electrical grid is essential to the provision of electric service for millions of customers in New Jersey. It is paramount that the State of New Jersey engages in discussions like the one here today to ensure state and regulatory actions do not jeopardize the safety, integrity, power quality, and reliability of the electric grid in any case. JCP&L is committed to doing our part to work towards New Jersey's clean energy goals, and we are thoughtful and deliberate in illustrating that commitment by continuously testing and introducing new technologies and renewable resources to the grid. The following are some examples of recent investments and activity to this effect, as well as some of our future plans, all of which are demonstrative of that commitment.

Residential Solar Acceleration

In 2023, JCP&L provided final approval for 5,691 net-meter interconnection applications across our service area. Approximately 95% of applications are small interconnections sized at less than 25kW, generally residential solar installations. The contractors know and understand the process, allowing for more efficient reviews. A detailed study and/or construction by JCP&L is generally not required for these smaller interconnections. Approximately 1%, or about 40-50 applications per year, are large interconnections sized at more than 500kW. The processing times are longer, as interconnections may require detailed study and circuit modeling, replacement of service transformers and circuit improvements, or substation modifications. Equipment lead-time and the scheduling of necessary forced outages to complete the work can cause further delays.

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Offshore Wind

On another renewable energy front, JCP&L is engaging in offshore wind, obviously a critical component of the state's clean energy goals. JCP&L is proud to have been awarded the majority of the transmission solicitation for connecting offshore wind-generated electricity to the grid, through the State Agreement Approach, and we are continuing to execute on that award. Our piece of New Jersey's ambitious offshore wind plans is to connect the wind generation once it has been brought onshore to customers across the state. The overall award consists of dozens of smaller onshore projects, and work is currently in the Engineering and Procurement Phase, with geotechnical surveying also underway.

All projects have been internally assigned and we have started engineering reviews for all phases.

As part of the procurement phase, we are anticipating placing major equipment orders soon to ensure that these materials are received on time.

EnergizeNJ Prioritizes Distribution Upgrades

In November of 2023, JCP&L filed EnergizeNJ, a $931 million distribution upgrade program, with the Board of Public Utilities ("BPU"). Furthering the success we saw from the Reliability Plus program, the more than $270 million in grid modernization proposed in EnergizeNJ includes the installation of more than 2,000 additional TripSaver devices across nearly 500 JCP&L circuits. More than a half-billion dollars in system resiliency upgrades will also ease the introduction of distributed energy resources through the build out of additional circuits and the segmentation of customer "pods." An additional $100 million is proposed for substation modernization – increasing remote access and automation capabilities in these areas and enhancing switchgear at our coastal substations to provide more protection from the salty environment.

Smart Meters

In March 2022, NJBPU approved JCP&L's plan to modernize the electric distribution system in our state with the installation of 1.1 million smart meters on customers' homes and businesses throughout our service area.

Installation of these Advanced Metering Infrastructure ("AMI") meters, or smart meters, commenced in January 2023 and is going well to-date. Mass deployment of AMI meters began on March 15, 2023. As of last month, 463,000 smart meters have been installed with 381,000 meters certified – meaning they are connected to the network and

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functioning as smart meters. Smart meters that are not yet "certified" will be connected to the full AMI network once the network is built out to those areas. AMI network deployment typically precedes smart meter installation by approximately three months.

Certified smart meters enable automated meter readings and may enhance JCP&L's ability to respond to outages faster and more efficiently. In the future, customers will have access to more detailed energy information through our online Home Energy Analyzer tool that will help customers make informed decisions on how to manage and control their electricity consumption.

Emergency repairs are a pinch point that has the potential to slow a customer's installation. We have experienced situations where pulling the old meter exposes an unsafe condition on the customer's side of the equipment. Instead of leaving customers without power, we proactively cover all repair costs to bring them back in power as soon as possible. The Company will not recover these costs from ratepayers and view these expenditures as investment into the long-term reliability of our infrastructure.

We are seeing a very low percentage of customers opting out of installation of smart meters (~0.6%), which is in line with what we expected in looking at the other states we operate in that deployed prior to New Jersey.

Full deployment of smart meter installations will continue through December 2025 with an anticipated approximately 99% of all AMI meters having been installed by that date. The anticipated remaining 1% of meters in challenging locations will continue to be addressed through December 2027.

Grid Modernization

As we continue to advance with interconnection, JCP&L has also worked to modernize the New Jersey grid using smart technology. We constructed distribution automated ("DA") loop schemes with automatic reclosers, primarily as part of our Reliability Plus program, which was completed in early 2021. Customers on a loop scheme that experience an outage can be automatically transferred to an adjacent circuit to immediately restore service.

JCP&L has a total of 112 automatic distribution circuit tie schemes in place, with 96 of these tie schemes also having system control and data acquisition ("SCADA") control, which allows for real time system monitoring and remote-control capability. The remaining 16 will have SCADA added as well.

Additionally, in late 2022, JCP&L, along with all of FirstEnergy, transitioned our outage management system to a distribution automated ready Network Management System. This new system will allow for more advanced automation capability in the future.

The Company expects to implement a total of 42 automatic distribution circuit tie schemes (approximately 8-9 schemes per year) affecting 80 circuits over the next 5 years.

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In closing, our Company will continue to work diligently with our industry peers, regulators, and government partners to ensure that the efficiency and integrity of the electric grid is maintained as we continue to advance to a clean energy future. We appreciate the opportunity to discuss these very important issues, and the proactive measures in place to best serve our customers with safe, affordable and reliable power and we look forward to continuing to work closely with you and your colleagues to achieve our mutual goals.

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Joint Senate Environmental and Energy Committee and Assembly Telecommunications and Utilities Committee Hearing

Remarks provided by Michael Wallace, Atlantic City Electric
3/11/24

Good morning Chairman Smith and Chairman DeAngelo and members of both committees. My name is Mike Wallace, Senior Manager of State Governmental and External Affairs for Atlantic City Electric and I appreciate the opportunity to speak to you today on the future of the electric grid in New Jersey and our efforts to modernize the grid in southern New Jersey for our 572,000 customers.

At Atlantic City Electric, we are committed to being a critical partner in helping New Jersey advance a clean energy future and meet the State's clean energy goals. We recognize that the grid is the platform that supports this transition. We will continue to make investments in our infrastructure to build a modern, reliable, resilient, and flexible grid that will continue to accelerate the clean energy transition for our customers and communities - while also focusing on affordability and supporting equity in this transition.

Our customers across South Jersey are continuing to experience improvements in the reliability of their energy service, a result of our ongoing efforts to reinforce and modernize the local energy grid, adding new technology and smart devices, and targeted projects to increase resiliency. These efforts resulted in our customers experiencing the lowest frequency of electric outages ever in 2023. Frequency of outages in 2023 decreased from the previous record low in 2022, by five percent, and has improved by nearly 60 percent since 2012.

Connecting customers to solar and other clean energy sources is a top priority at Atlantic City Electric. To date, we have helped nearly 50,000 customers adopt solar, totaling more than 550 MW. In fact, solar has experienced such high penetration in our service area that it now accounts for approximately 25% of net peak demand. We recognize that continuing to sustain solar growth with a large amount of solar on our system requires ongoing investment and grid modernization.

Last year, the Board of Public Utilities approved our Powering the Future program filing, a four-year $93.1 million portfolio of projects that expands our support for New Jersey's clean energy and climate goals while furthering efforts to deliver safe and reliable service to our customers. The program allows for the acceleration of 22 targeted projects that span four different categories: Targeted Reliability Improvements, Smart Technology Upgrades, Solar/Distributed Energy Resource (DER) Enablement, and Substation Improvements.

The investments through our Powering the Future program will address many of our closed feeders, which would pave the way for roughly 50,000 new rooftop solar customers—potentially doubling the number of solar installations in our service area. And overall, we plan on opening ~85% of our closed feeders by the end of 2025.

Closed feeders are often caused by substation transformer limitations due to reverse power flow that occurs from behind the meter solar generating more energy than is used at the meter. In response, we have incorporated overvoltage protection into our standard transformer protective relaying package used across the Atlantic City Electric system. All newly constructed projects will utilize this standard going

forward. This upgraded standard maintains the safety, reliability, and resiliency of our transmission and substation equipment during system faults when reverse power flow conditions are present due to the high penetration of Distributed Energy Resources, like solar.

Additionally, we have established a multi-year program to proactively install overvoltage protection schemes on transformers across the system in order protect equipment for reverse power flow conditions. This program is expected to begin in 2024 and will help prevent us from needing to close circuits to solar in future years.

We are also exploring ways to support larger solar projects, with a focus on developing cost sharing mechanisms that lower the financial barriers for solar developers for large interconnections over 1 MW. We are continuing to develop this concept and socialize it with developers for feedback. We will provide BPU staff and the Legislature progress updates, as we believe this approach will support an important pillar of the solar market in New Jersey.

Next, our Smart Energy Network deployment continues on-track. We have installed more than 460,000 smart meters as part of our Smart Energy Network, laying the groundwork for New Jersey's exciting clean-energy future with an improved platform that can more efficiently integrate new energy technologies and better connect customers to solar energy, energy-efficiency programs and electric vehicles. We expect to have all smart meters installed by mid-2024 with a goal of achieving enhanced functionality for all smart meters by Fall of 2024.

We are also supporting the development of the New Jersey Economic Development Authority's (NJEDA) New Jersey Wind Port, a South Jersey facility that is essential for the staging, assembling, and manufacturing activities for offshore wind projects along the East Coast. Our Wind Port Power Connect project includes upgrading approximately 11 miles of power line with stronger utility poles and more modern equipment to serve the New Jersey Wind Port facility. The power line primarily runs along an existing right-of-way from one of our substations in Salem, N.J., to a customer-owned substation at the Wind Port facility on Artificial Island in Lower Alloways Creek Township, N.J. Construction is expected to be completed by fall of 2024.

And finally, we continue looking for innovative ways to enhance reliability and modernize the grid for our customers. One project of note is our Beach Haven Battery Energy Storage project. The 1 MW battery storage project improves the reliability and quality of energy service for thousands of customers and seasonal visitors in Beach Haven and Long Beach Island during times when customer demand for energy is highest. The battery storage system will also act as a back-up system if there is an issue with a transformer or other critical equipment at a substation serving the community, especially during periods of high energy demand, creating additional capacity and supporting the overall reliability of the local energy grid.

In closing, thank you again for the opportunity to speak to you today on the future of the electric grid in New Jersey and Atlantic City Electric's efforts to modernize the grid in Southern New Jersey.

Testimony of Asim Z. Haque
SVP Governmental and Member Services
NJ Assembly Telecommunications & Utilities and Senate Energy and Environment Committees
A1480 and S258
March 11, 2024

PJM Position on Legislation

PJM takes no position on A1480 and S258. The primary impact of both bills is on electric distribution companies, competitive retail suppliers and consumer retail rates. PJM plans and operates the grid on the bulk electric system level and operates wholesale energy markets that set wholesale rates. Thus, these primarily retail market-related bills do not impact PJM core functions.

Who is PJM?

PJM Interconnection ensures the reliable flow of power to 65 million people in 13 states and the District of Columbia. We are similar to an air traffic controller, but for the electric grid. We don't own the high-voltage transmission lines that carry electricity, but we direct and balance the flow of that power throughout our region and to and from neighboring regions. In addition to reliable operations, PJM also plans necessary enhancements to the transmission grid to ensure reliability into the future and operates the electricity markets within its region to competitively procure capacity and to meet electricity demand in real time. The purpose of these electricity markets is to cost-effectively reinforce reliable grid operations. PJM is federally regulated by the Federal Energy Regulatory Commission (FERC). Our core business functions save consumers between $3.2 and $4 billion in energy costs annually.

The U.S. Grid Is In An Energy Transition

As with the entire U.S. electric grid, PJM is experiencing an accelerating transition toward renewable energy. Policies and consumer choices are shifting the grid away from dispatchable thermal (coal, gas, nuclear) generation resources toward resources with little-to-no carbon emissions. PJM has a generation interconnection queue that is mostly comprised (~98%) of intermittent generation such as wind and solar, as well as battery technology. Thus, PJM has affirmatively stated that we are in an energy transition to a changed resource mix and a greener grid.

A Reliability Concern: Resource Adequacy

Knowing that we are in an energy transition, PJM has analytically studied and will continue to study the energy transition. Based on our analysis, we have observed a few trends that, when taken in the aggregate, will create a reliability concern around resource adequacy (i.e. having enough electricity supply to meet demand) later into this decade.

- First, the rate of electricity demand is anticipated to increase significantly in the future due to the electrification of the transportation and heating sectors. There has also been a significant near-term increase in the development of large data centers in the PJM region, each of which consumes electricity in very high volumes.
- Second, the pace of retirements of existing fossil-based resources, largely due to state and federal policies, is clearly outpacing the construction of new renewable resources. There have been a variety of reasons cited for this lag in construction, including supply chain, state and local and siting challenges, and issues related to project financing.

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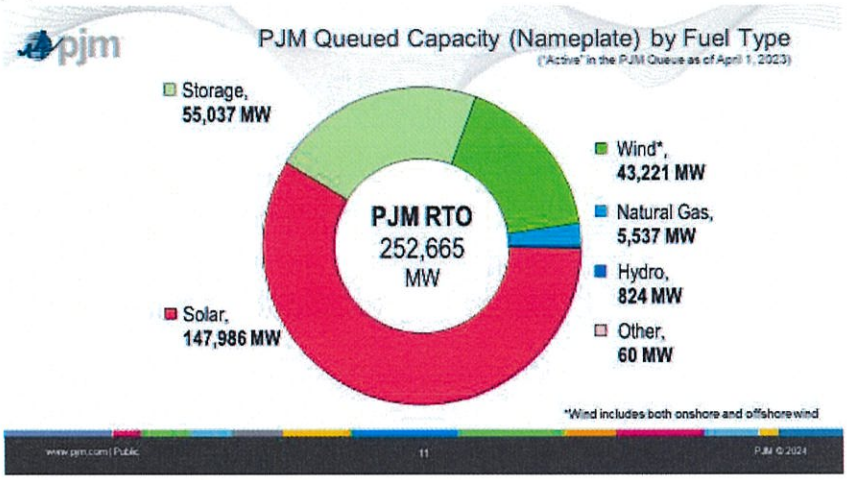
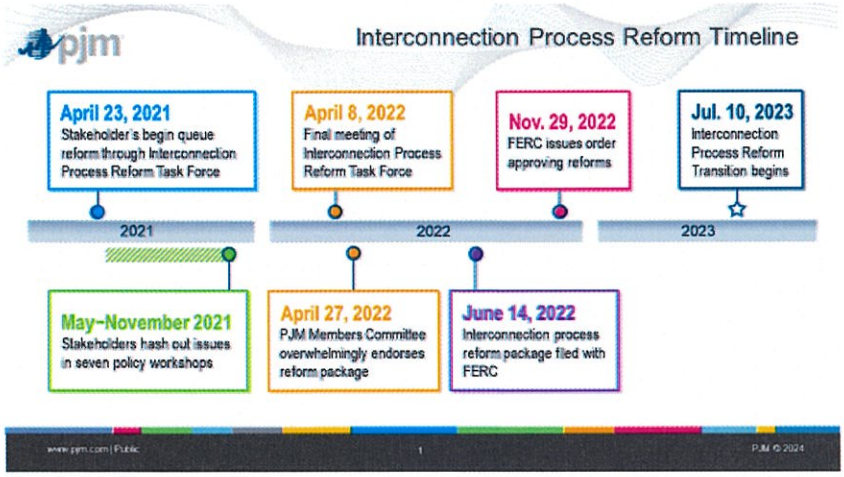
- Finally, the thermal dispatchable generators slated to retire are those that have historically provided the grid balancing services necessary to reliably operate the system. Longer-duration batteries and potentially other technologies could also serve in this role in the future if they can become more cost-effective and are deployed at scale.

Replacement (Renewable) Generation Update

PJM has made significant strides in reforming the generation interconnection queue so as to speed-up the interconnection of legitimate projects in the queue that have both financial wherewithal and site control. I will speak to the next few graphics:





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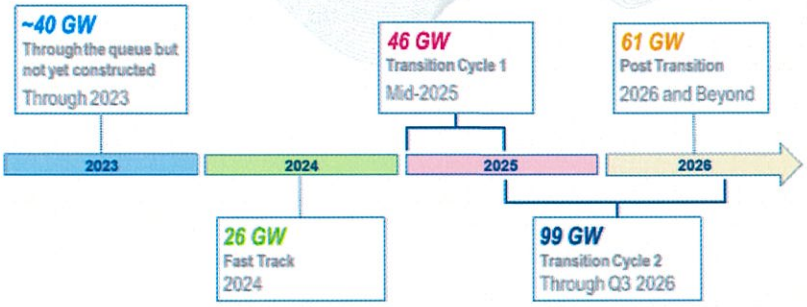
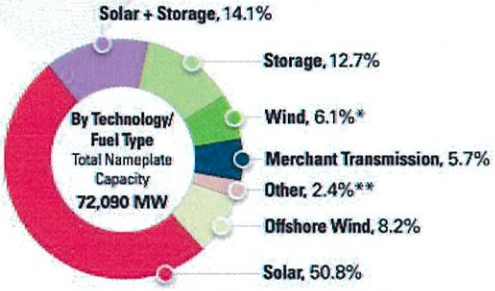
Interconnection Queue Breakdown and Timeline



Projects To Clear PJM Interconnection Process in 2024 and 2025

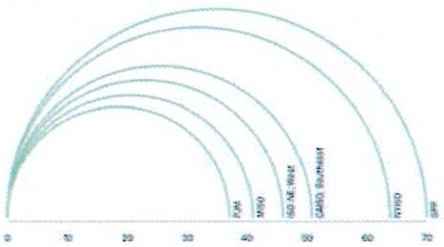
By State	Number of Projects	Total Nameplate Capacity (in MW)
DE	5	1,184
IL	82	13,798
IN	69	13,475
KY	39	4,125
MD	6	1,288
MI	8	887
NC	25	1,775
NJ	25	1,528
OH	72	8,613
PA	108	5,055
VA	162	19,012
WV	15	1,350
Total	616	72,090



*Includes one combined Wind & Solar facility of 199 MW
**Other: Natural Gas (1,647 MW, 2.3%) and Hydro (51 MW, 0.1 %)

U.S. Interconnection Queues – S&P Global

Average time from queue date to proposed online date (months)



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- While PJM leaves the determination of energy policy to state and federal government, we respectfully urge that policymakers:
    - *Avoid* policies meant to push generation resources off of the system until an adequate quantity of replacement generation is online and has been shown to be operational.
    - *Analyze* your state/local challenges in the deployment of new generation resources and electricity infrastructure, and *enact* policy to facilitate greater/quicker construction.
- PJM is working to advance state energy goals like offshore wind transmission planning with New Jersey, as well as taking a series of steps to try and maintain reliability as we progress through the energy transition. For more information on PJM's efforts, please visit the Ensuring a Reliable Energy Transition webpage on PJM.com. It outlines the organization's reliability concerns, the actions PJM is advancing to help alleviate those concerns, and all of the studies produced in support of these efforts.

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Testimony of Prof. Jesse D. Jenkins, Princeton University

Submitted to the Senate Environment and Energy Committee and the Assembly Telecommunications and Utilities of the State of New Jersey

March 11th, 2024

Chairman DeAngelo, Chairman Smith, honorable members of both Committees, I appreciate the opportunity to testify today on the costs and benefits of enacting a 100% Clean Electricity Standard.

By way of background, my name is Dr. Jesse D. Jenkins. I am a macro-scale energy systems engineer and an assistant professor at Princeton University. I hold joint appointments in the Department of Mechanical and Aerospace Engineering and the Andlinger Center for Energy and Environment, and I lead the Princeton ZERO Lab (Zero-carbon Energy systems Research and Optimization Laboratory), which focuses on improving and applying optimization-based energy systems models to evaluate and optimize low-carbon energy technologies, guide investment and research in innovative energy technologies, and generate insights to improve energy and climate policy and planning decisions. I earned PhD and SM degrees from the Massachusetts Institute of Technology, worked previously as a postdoctoral fellow at the Harvard Kennedy School, and spent six years as an energy and climate policy analyst prior to embarking on my academic career. A full set of my current professional affiliations and experience can be found at https://www.linkedin.com/in/jessedjenkins/. I recently served on the National Academies of Science Engineering and Medicine expert committee on *Accelerating Decarbonization of the U.S. Energy System*, was a principal investigator and lead author of Princeton's landmark *Net-Zero America* study, and currently lead the REPEAT Project (repeatproject.org), which provides regular, timely, and independent environmental and economic evaluation of federal energy and climate policies as they're proposed and enacted. **I must note that the views expressed in this testimony are my own, and I am not speaking as an official representative of Princeton University.**

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In February 2023, Governor Murphy signed Executive Order 315, establishing the goal of supplying 100% of the electricity sold in the state from clean sources by 2035.

However, New Jersey will not reach such a goal unless the Assembly and Senate enact legislation soon establishing clear policy mechanisms supporting this transition to a fully clean electricity supply.

Last year, my Princeton research group, the ZERO Lab, conducted detailed electricity system modeling and concluded that New Jersey can reach 100% clean electricity by 2035 while maintaining affordable and reliable electricity supplies. We estimate that should this target be reached, in 2035:

- New Jersey electricity customers would pay no more for their bulk electricity supply than we did in 2019, even under higher cost renewable energy scenarios.[1]
- Over 20,000 megawatts of new clean electricity and energy storage capacity would be built in New Jersey.
- Clean resources in New Jersey would generate over 20% more electricity than is produced by *all* resources (including fossil power plants) today.[2]
- The law would support about 24,000 jobs building, operating, and maintaining clean generation and storage plants in New Jersey, while preserving all employment at our existing nuclear power plants and 96% of employment at natural gas plants in the state.
- Between 75-90% of total subsidies provided by state clean electricity programs would be received by clean electricity generators in New Jersey, supporting investment and jobs in the state.

[1] Estimated costs are for bulk electricity supply, transmission, and policy requirements are ~$70-77/MWh in 2035 (in 2022 real dollars), depending on scenarios for future wind, solar, and battery storage costs. For comparison, 2019 historical costs were $79/MWh (in 2022 real dollars). This estimate excludes distribution network and retailing costs, which today are about 55% of residential customer retail electricity bills or approximately $95/MWh, and would be unaffected by the proposed law.

[2] Our analysis estimates about 85 terawatt-hours would be generated by in-state renewable and nuclear generators in 2035, which compares to 73 terawatt-hours in total (33 from nuclear and renewables) in 2019 and 66 terawatt-hours (36 from nuclear and renewables) in 2021.

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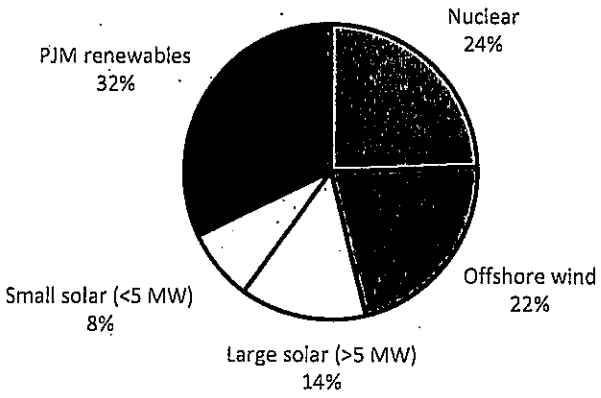
Figure 1. Modeled least-cost New Jersey 100% carbon-free electricity supply mix in 2035



Total modeled supply:
115.3 terawatt-hours
(million megawatt-hours)

Figure 2. Modeled New Jersey bulk electricity supply cost compared to 2019 historical cost ($/MWh)[3]

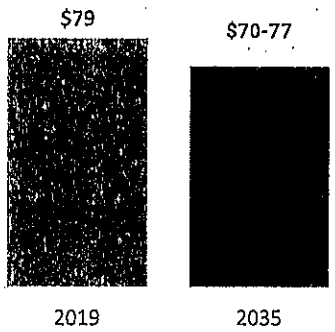
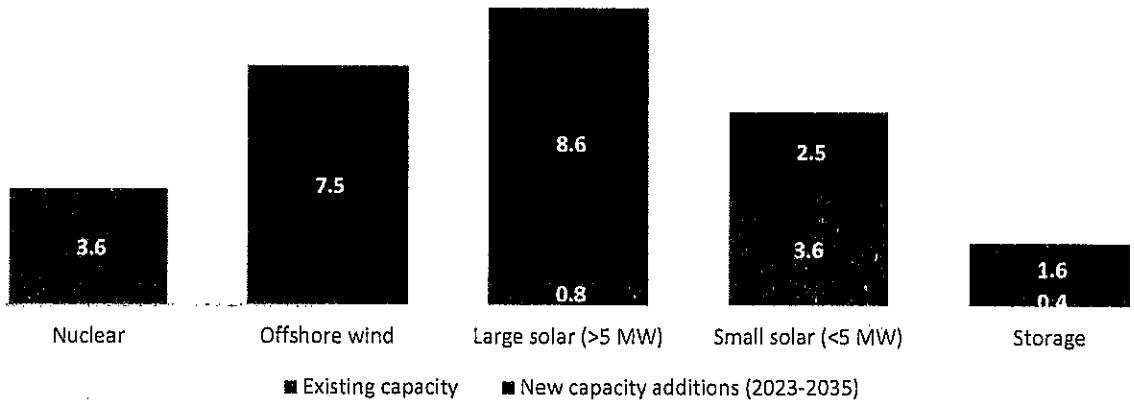


Figure 3. Modeled New Jersey clean energy capacity in 2035 (gigawatts)



[3] See Note 1 above. Reported in 2022 real dollars.

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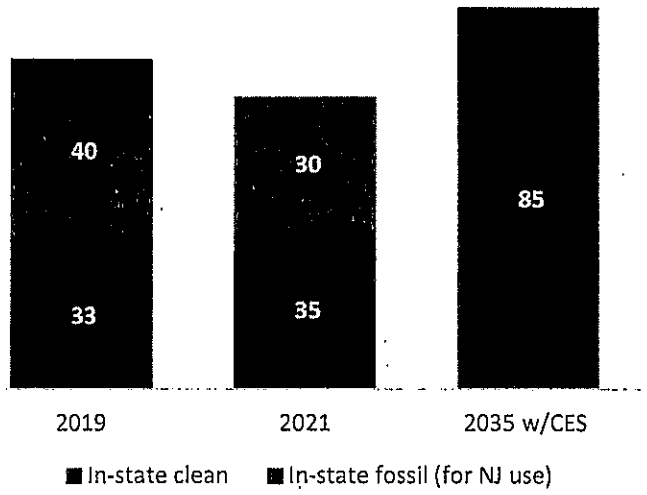
Figure 4. Modeled New Jersey in-state renewable and nuclear generation in 2035 compared to historical 2019 and 2021 in-state generation (terawatt-hours per year).



As we consider new state legislation today, it is important to remember that the federal *Inflation Reduction Act of 2022* effectively puts all clean electricity resources on sale, saves New Jersey electricity consumers billions of dollars,[4] and sets the stage to increase the State's ambition by establishing a 100% clean electricity law.

As the joint Committees begin work on a clean electricity standard, I encourage you to ensure such legislation enacts a sound balance between four overarching objectives:

1. Establishing effective policy mechanisms to ensure the state reaches its clean electricity goals;
2. Supporting the growth and expansion of New Jersey's clean energy economy and jobs;
3. Maintaining affordable electricity for state residents and businesses; and
4. Ensuring reliability of the state's electricity supplies.

[4] The federal production tax credit and investment tax credit reduce the cost of all new carbon-free electricity generation and energy storage by up to 50%. The IRA also establishes a new tax credit to preserve existing nuclear power plants. Beginning this year, this new federal tax credit will pay the owners of New Jersey's Salem and Hope Creek plants up to $415 million annually, which should be sufficient to reduce requirements for state ZEC payments to zero while the federal tax credit is in place, saving New Jersey up to $300 million each year from 2024-2032.

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Last session, Senator Smith introduced the *New Jersey Clean Energy Act of 2023,* or Senate Bill 2978. As you begin work again this session, I encourage you to consider the substitute amendment to S.2978 prepared last November as a starting point. In my professional opinion, that proposed statute strikes the appropriate balance between these four important objectives.

The substitute amendment to S.2978 would have required New Jersey electricity suppliers to procure enough qualified clean electricity to supply 100% of annual electricity sales by 2035, with interim requirements from 2027 onwards. These new requirements would build on and incorporate, not replace, current State policies supporting solar PV, offshore wind, and existing nuclear power plants. It would also establish a trailblazing, first-in-the-nation requirement that 100% of the state's electricity reliability needs are met by clean resources by 2045.

I also encourage you to empower the Board of Public Utilities to harness competitive procurement processes that seek out the most cost-effective resources available and provide long-term contracts for clean energy attributes.

Rather than mandate further deployment of specific resources, like offshore wind or distributed solar, the Legislature can establish broad goals for the share of clean electricity desired from within the state versus across the broader PJM region. Then, we can use competitive, all-clean-source solicitations to determine the most affordable portfolio of resources to meet these goals. Crucially, long-term contracts provide revenue certainty to clean energy developers, making it easier to them secure lower cost financing—which translates directly to savings for New Jersey electricity consumers.

Speaking of affordability, I also want to stress that, while the State clearly has an interest in supporting the continued growth of a vibrant clean energy sector in New Jersey, this objective must be balanced with the need to maintain affordable rates for all New Jersey household and businesses. It will do little good to support investment and job creation in clean energy sectors, if it comes at the expense of higher energy costs and less employment at other New Jersey businesses. In particular, it is critical that whatever goal the Legislature sets for in-state resources, that the statute contains appropriate safeguards or off-ramps if insufficient clean electricity is available in New Jersey at a reasonable cost.

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It is also paramount that any legislation helps maintain the reliability of the state's electricity supplies. A Clean Electricity Standard or CES can do so in three key ways:

First, a CES would preserve the state's existing nuclear power plants for the long-term, ensuring they continue to provide reliable, emissions-free electricity for as long as they are safe to continue operating. These plants supply about 30% of New Jersey's electricity today. To put it bluntly, there is no way the state can reach a 100% clean electricity supply by 2035 while also retiring and replacing these existing plants. They are the foundation for rapid emissions reductions going forward.

Second, a CES would permit the use of existing natural gas plants to meet reliability needs and would not require retirement of gas generators until clean, reliable replacements are available. A CES requires qualified clean resources to supply 100% of New Jersey's demand on *an annual, volumetric basis*, but it does *not* require that electricity consumption in New Jersey is met by clean generation *in every hour* of the year. A requirement like this would thus permit existing natural gas plants in New Jersey to operate when necessary to meet reliability needs.[5] In this context, this flexibility should be considered a feature, not a bug, as it allows New Jersey to rapidly and confidently transition to 100% clean supply on an annual basis in just 11 years without requiring any new technology. Meanwhile, because electricity markets dispatch wind and solar, which have no fuel costs, *before* more expensive gas-fired generators, a CES would bring on new clean electricity that would reduce overall generation from gas plants and slash resulting pollution.

Third, turning to the substitute amendment to S.2978 again as a model, New Jersey should establish a first-in-the-nation commitment to meet 100% of our reliability needs with carbon-free resources by 2045. We don't have to wait until 2045 to get started on the path to this goal, as we can authorize the BPU to create new programs to support near-term deployment of innovative carbon-free electricity technologies to help meet New Jersey's reliability needs, including long-duration energy storage, advanced nuclear power, or green hydrogen. A

[5] Power generated during these periods would be claimed by electricity suppliers outside the state while New Jersey suppliers would secure additional clean electricity in other time periods to meet their annual requirement.

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commitment like this is essential to eventually end our reliance on polluting gas power plants entirely and would be truly historic. No other state with a 100% clean electricity standard has committed to meet all reliability needs with carbon-free resources, but doing so is critical to ensure the state's electricity supply truly is 100% clean.

I want to commend Chairman de Angelo and Chairman Smith and the members of both Committees for considering how to best seize this moment and transition New Jersey faster to 100% clean electricity while preserving affordability and reliability for state households and businesses.

I thank all of the members of the Committees for considering this testimony and I would be happy to answer any questions the Committees or its staff may have. Thank you for your continued leadership on these critical issues.

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Thank you for allowing me the chance to speak on behalf of my patients, my community. My name is Dr. Elizabeth Cerceo, a internal medicine physician. I am an associate professor of medicine, Director of Climate Health at CMSRU and member of Clinicians for Climate Action NJ. My views do not necessarily reflect those of my employer.

As a physician practicing in an environmental justice community, I can assure you that the impacts of fossil fuel combustion are impacting the health of New Jerseyans today and this will only increase in the future. Steps like tighter air quality regulations from the EPA are needed but we saw this morning that these regs are already being weakened. We cannot wai for federal regulations for our our health.

The question is: How many deaths from fossil fuel pollution are just too much? And how small a number is acceptable? There is no question that deaths result from fossil fuel pollution & climate change but the question is just how many. Many of my colleagues have begun the complex task of modeling but there are millions of environmental, social, and political variables. Some calculations say there are tens of millions. If you include premature deaths from the fossil fuel pollution, estimates will stretch into the hundreds of millions. A commonly quoted, and conservative, estimate from WHO is that 1 in 5 premature deaths are caused by fossil fuel pollution. In NJ, > 17,600 deaths annually are directly linked to air pollution based on research from Harvard School of Public Health.

Using an older formula only looking at malnutrition, malaria, floods, diarrhea, and cardiovascular disease, Georgetown University biologist Colin Carlson calculated that warming had already killed four million people globally since 2000. This means that deaths from climate change have already exceeded those from all WHO global-health emergencies combined other than Covid-19. But these deaths are not attributed to pollution or climate change.

And of course aside from people dying, many more people are made sick with everything from heart disease to cancer, DM, HTN, stroke, neurologic disease in children, Alzheimer's, ID like WNV, Lyme and increased hospitalizations. The health effects of many toxic pollutants are often only uncovered years after millions have been exposed.

Think about the tobacco industry. The fossil fuel industry has picked up the same playbook as tobacco with their executives prioritizing profits over lives. They try to sow doubt but does anyone have doubt that breathing in thick polluted air is good for us? Is it surprising that both the concentrated pollution of a cigarette and the diffuse pollution all around us cause disease? Unlike tobacco, we now know that everyone is at risk because we can't choose the air that we breathe. With the EPA definition of clean air, 36% of Americans (119.6 million) breathe unhealthy air. Many counties, including Camden County, where I live currently get failing grades for air pollution.

While everyone is impacted, some are more impacted than others with children, pregnant women, disadvantaged communities, the elderly and those with other illnesses being disproportionately affected. Pregnant women living near power plants had the highest rates of stillbirth. I doubt there is anyone on either side of the aisle that wants to put pregnant women in harms' way. Nationally, people of color are 61% more likely to live in a county with failing grades for air quality. Black residents are 2x as likely to have asthma as white residents.

When my patient comes in with lung cancer that has metastasized to the brain, we don't say this is from fossil fuel combustion, though we know exactly how particulate matter leads to lung adenocarcinoma and that ~20% of lung cancer cases are from fossil fuel pollution. When my patient who lives next to a diesel truck stop or an incinerator has a heart attack, we don't usually cite fossil fuels as the cause. When children die from asthma, we don't put the cause of death as pollution, even though the UK now does.

19x

Decreasing air pollution has direct and immediate health co-benefits to the communities that enact the changes. New Jerseyans would benefit directly from clean energy in NJ. Numerous studies have shown that health benefits, decreased mortality, and decreased days of lost wages would substantially outweigh implementation costs. Often costs of a change are considered as a standalone expense without the context of the millions of dollars saved in public health and lost work-days. The Clean Air Act in the 1970s resulted in a savings of $30 for every $1 spent. Time and again, public health measures, provisions that provide for clean air, water, and soil are found to be cheaper than polluting because people maintain their health.

And of course, there are respiratory diseases like asthma. Nationally, people of color are 61% more likely to live in a county with a failing grade for air pollution, according to the American Lung Association. Black NJ residents were twice as likely to be diagnosed with asthma as white residents

We also have to ensure that our vulnerable and economically disenfranchised communities are not left behind and the Clean Energy Act helps to protect our environmental justice communities. Black and brown communities bear a disproportionate burden of harms. Lastly, a goal of decreasing energy costs is an additional benefit to all New Jerseyans but would especially support EJ communities. As dangerous heat waves have shown, not having access to cooling due to lack of air conditioning or inability to pay for electricity can be deadly. Cheaper, cleaner energy is part of the solution to go to the root cause of global warming and mitigating the health impacts.

The supposition that market should dictate decisions ignores the lives lost and the illness caused by fossil fuel pollution. We must not assume that fossil fuel executives and their lobbyists have our best interests at heart. Rapid adoption of a Clean Energy Standard is part of an important public health agenda where the lives, health, and well-being of all New Jerseyans are valued. As a physician and a mother, I am in full support of Bill S-2978 and I urge this legislature to prioritize the lives of our neighbors similarly.

Testimony of David A. Robinson, PhD

Distinguished Professor, Department of Geography
New Jersey State Climatologist, NJ Agricultural Experiment Station
Rutgers University-New Brunswick

To the

NJ Senate Environment and Energy Committee
and
NJ Assembly Telecommunications and Utilities Committee

March 11, 2024

Regarding

New Jersey Climate Change

21x

My name is David Robinson. I am a distinguished professor of Geography and the New Jersey State Climatologist at Rutgers University-New Brunswick. I lead the Office of the NJ State Climatologist and the Rutgers Global Snow Lab. I would like to thank Chairs Smith and DeAngelo and members of their committees for inviting me to testify at today's hearing. The views I express are my own. I am not speaking as a representative of Rutgers University, any offices, institutes or centers in which I participate, or for any colleagues.

I have been on the faculty at Rutgers since 1988 and was appointed state climatologist in 1991. Prior to arriving at Rutgers, I was an Associate Research Scientist at Columbia University's Lamont-Doherty Earth Observatory, where I earlier received my PhD. My research interests include applied climate, climate dynamics, and climate change, particularly focused on global snow cover and the weather and climate of New Jersey. I have published over 150 peer-reviewed scientific articles and secured over 150 research grants. I have been a member of the National Academy of Sciences' Board on Atmospheric Sciences and Climate and am a past president of the American Association of State Climatologists. I am a Fellow of the American Meteorological Society, and have received the Lifetime Achievement Award of the American Association of Geographers. I have also contributed to Intergovernmental Panel on Climate Change and National Climate assessments.

The Office of the NJ State Climatologist serves as the focal point for activities pertaining to the weather and climate of New Jersey (https://njclimate.org). ONJSC mission foci include a) gathering and archiving data on NJ weather and climate conditions, including operating the Rutgers New Jersey Weather Network (NJWxNet), b) conducting and fostering research concerning the climate of New Jersey, and c) educating and informing New Jersey citizens on matters related to climate. We assist a plethora of stakeholders in making informed decisions that directly or indirectly involve a weather/climate factor. The NJWxNet, a constellation of 67 stations, observes a variety of meteorological elements every five minutes, making them freely available via our website (https://njweather.org).

22X

Today, I will be providing a brief overview of New Jersey's climate and climate change. I will focus on change and the anthropogenic underpinnings of what has been transpiring in recent decades, along with what the future may hold.

1. **The Earth's climate system is remarkably complex.** A myriad of influences, external to the system, as well as internal ones operate on time scales from seconds to millennia. New Jersey's middle-latitude location, on the eastern edge of a continent with a major ocean to the east, leaves the state directly exposed to most every climate variable imaginable. Distant volcanoes and ice sheets even play a role in determining the state's climate and coastal sea level. New Jersey has four relatively well-defined seasons, with clashes between cold and warmth that trigger significant weather events over the course of any year. This was made abundantly evident with Sandy in October 2012, along with New Jersey bearing the brunt of a number of other impactful events this century, including Tropical Storm Irene, Post-tropical Cyclone Ida, and an abundance of record warmth.

2. **There is unequivocal evidence in recent decades that New Jersey's climate is changing, due in large part to human impacts on the global climate system.** New regimes of temperature and precipitation are evident and changes in the strength and frequency of severe events are underway. This is expected to continue in the decades ahead, along with associated changes in sea level. Temperatures have risen throughout the bulk of the past century, but no more so than in the past several decades. Warming since 1980 is proceeding at a rate of approximately 7°F per century. Warming is noted in both winter and summer, with nighttime temperatures rising faster than daytime values. Eight of the ten warmest years since 1895 have occurred since 2010, 19 of the 20 warmest since 1990. Precipitation since 1980 is increasing at a rate of over one foot per century. The two wettest years since 1895 include 2012 and 2018. More of our rain is falling in larger events....when it rains it pours, and this has led to an increasing frequency of major freshwater flooding. In the midst of this, recent decades have seen an increase in the year-to-year variability of New Jersey precipitation.

3. **Global and regional climates are changing in large measure due to increasing atmospheric greenhouse gases that are directly and indirectly attributable to the burning of**

23x

fossil fuels, be this coal, oil, or natural gas. There are other sources of greenhouse gases contributing to change, but the major drivers are fossil fuels. This anthropogenic pollution enhances the earth's natural greenhouse, a blanket of gases that make the planet warm enough to be habitable. The additional quantity of these gases increases atmospheric warmth, which in turn increases the amount of water vapor in the atmosphere, vapor being the most ubiquitous greenhouse gas. Increasing the quantity of these gases is akin to placing another blanket on the bed. Solar energy entering the earth-atmosphere system is retained for a greater length of time, leading to warmer conditions. It is worth adding that over 90% of the additional anthropogenic warmth is being held in the world's oceans, an effect that appears to be contributing to New Jersey being one of the fastest warming States.

4. **New Jersey's climate will continue to change in upcoming decades.** While there have been a number of studies that have employed climate models to project future weather and climate conditions in the Mid Atlantic and Northeast, none have focused solely on New Jersey. Model projections vary due to uncertainty in future emissions of warming greenhouse gases and other variables and due to differences within the models themselves. However, all project continued warming in our region and steady or perhaps increasing precipitation. Projections for the next several decades suggest that no matter how emission scenarios change, New Jersey will warm in the range of 2°-5°F. However, the magnitude of warming in the second half of this century will vary depending on the quantities of current and future emissions. The fewer fossil fuels consumed the less warming. Additional warming in the second half of the century may be less than 1° to 3°F with reduced greenhouse emissions but as high as an additional 4°-6°F with more in the way of "business as usual" emissions. Current and near-future actions or a lack thereof will have significant climate consequences later this century. Other projections suggest that summers may warm up more than other seasons and not see an increase in precipitation, while winters become milder and wetter. Tropical systems may become stronger, but whether they become more common is uncertain, let alone is it known if they might affect NJ more or less frequently than in the past.

5. Challenges are clearly at hand as the ongoing climate crisis is addressed. Changes taking place within New Jersey's climate system continue to be recognized by individuals, agencies, and

24x

organizations in a multitude of stakeholder communities. This includes energy, health, agriculture, water resource, environmental, education, transportation, and emergency management sectors, among others. A three-prong approach is needed to face these challenges. First, it is imperative that all participants, ranging from decision makers to the general public, achieve a fundamental understanding of the climate system and how it is changing, along with an appreciation of scenarios associated with the impacts of future change. With all on a more common knowledge footing, the next challenge involves employing mitigative actions to reduce change threats. In particular, innovative means of reducing emissions of carbon dioxide and other greenhouse gases must be explored and implemented. Society must become less reliant on fossil fuels and more efficient energy consumption is a must. The more that mitigative actions are employed, the reduced burden society will face toward adapting to climate-induced changes. Without doubt, society will have to continue pursuing efforts to improve resilience to threats associated with change. It is just a matter of how quickly and effectively the myriad challenges associated with climate change are addressed that will dictate ongoing impacts.

Again, I would like to thank Senator Smith, Assemblyman DeAngelo and all on these two committees for offering me the opportunity to contribute to this hearing. I would be happy to follow up with any of you as questions arise and temperatures continue to rise in the months and years ahead.

25x

ONJSC Mission

The Office of the New Jersey State Climatologist (ONJSC) serves as a focal point for activities pertaining to the climate of New Jersey. ONJSC mission foci include:

1) **Data:** gather and archive data on NJ weather and climate conditions, including the Rutgers New Jersey Weather Network, or NJWxNet.

2) **Research:** conduct and foster research concerning the climate of New Jersey.

3) **Outreach:** educate and inform the citizens of New Jersey on matters related to climate.

NJ's Diverse Climate

New Jersey's diverse climate, with five distinct climate zones from High Point to Cape May (see center map), coupled with a blend of urban and rural environments, presents a wealth of challenges when it comes to monitoring and predicting the area's weather and climate.

By providing experienced consultation, making presentations throughout the state, and operating a free, online weather network, the ONJSC helps keep New Jersey's nine million citizens and countless stakeholders/decision makers informed and ahead of NJ's dynamic and challenging environment.

RUTGERS
New Jersey Agricultural Experiment Station

Locals Trusting Locals!

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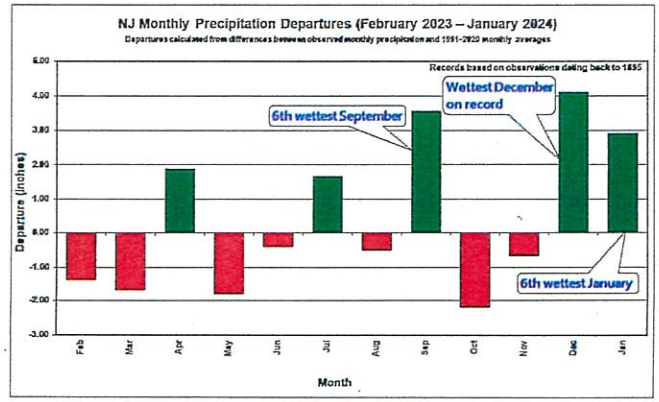
Rutgers University NJSC

Office of the NJ State Climatologist

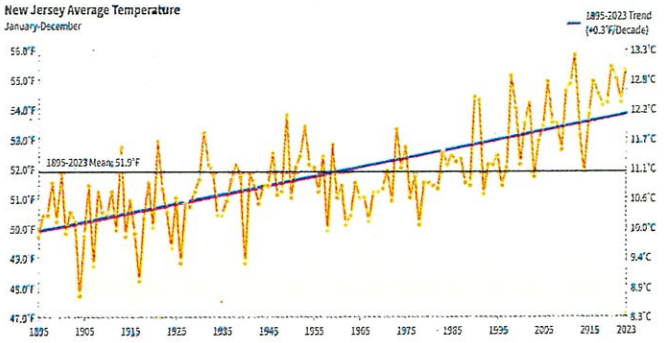
njclimate.org

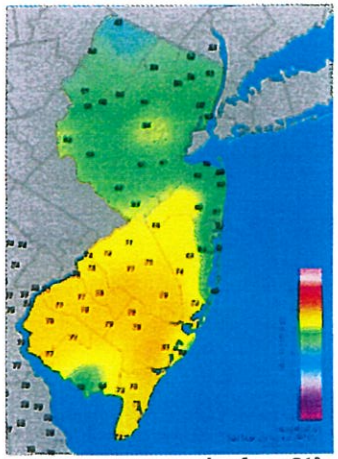


ONJSC Activities

- Maintain a comprehensive website with current and historic weather and climate data and documentation, case studies, real-time maps and tables, and links to state, national, and global sources.

NJ Annual Temperature: 1895-2023





Temperatures ranging from 81° to 41° at 2:00PM 25 March 2017.

- Rutgers NJ Weather Network provides NJ citizens, businesses, and agencies timely (every 5 minutes) data on current atmospheric conditions throughout the state. Data from 67 stations maintained by the ONJSC and from other entities create a reliable source of accurate information.

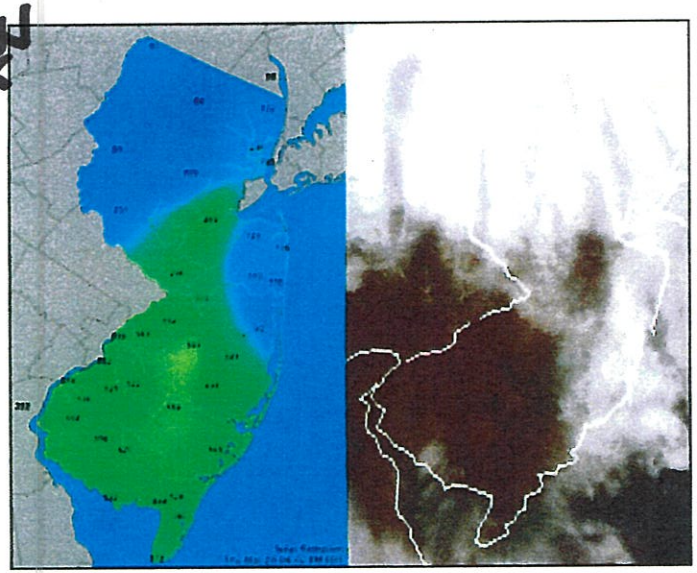
- Hundreds of data requests, media interviews, and professional and classroom presentations each year.

- Research projects related to temperature variability, urban heat islands, storm analyses, excessive precipitation, and other regional climate issues.

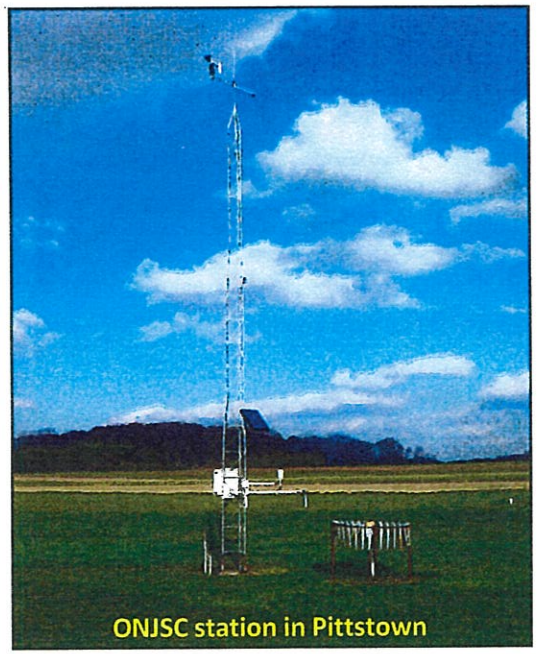
The NJWxNet

The Rutgers New Jersey Weather Network (NJWxNet) serves as a comprehensive information resource for NJ weather and climate monitoring, weather forecasting, and weather/climate-related decision making. It is one of the densest mesonets in the nation, here in the most densely populated state. At the ONJSC, raw data are processed into a common database, with data and derived products made available in colorful maps, graphs, and tables via the NJWxNet website (njweather.org) within minutes of the observation.

The 67 stations operated by the ONJSC constitute the backbone of the NJWxNet. These high-quality stations are polled every 5 minutes, providing near real-time monitoring of temperature, precipitation, wind, and other weather conditions across NJ. Observations are also made available from ASOS (National Weather Service), RWIS (NJ DOT), RAWS (US Forest Service), and USGS networks.



Solar radiation is measured at many NJWxNet sites, providing real-time information about the distribution of solar energy throughout the state.



ONJSC station in Pittstown

Purpose

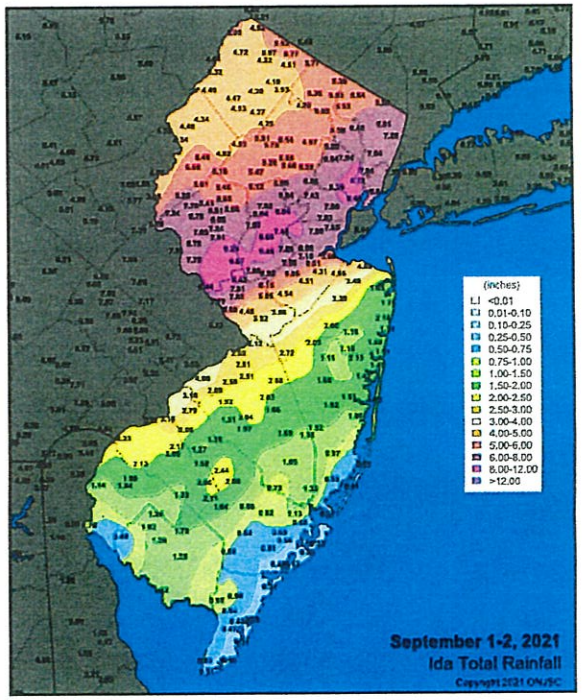
Observations from the NJWxNet and CoCoRaHS are used by a wide variety of organizations and individuals. These include Rutgers scientists, National Weather Service forecasters, private meteorologists, hydrologists, emergency managers, utility personnel (water supply, water conservation, storm water, electric, gas), insurance adjusters, engineers, mosquito control officials, farmers, teachers, students, and neighbors.

Rutgers University NJSC

CoCoRaHS

The Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS) is a nationwide volunteer precipitation-observing organization that New Jersey has participated in since 2008. The NJ chapter of CoCoRaHS is managed by the ONJSC and currently has over 300 active participants and is continually looking to enlist volunteers to take a few minutes each day to report the amount of rain or snow that has fallen in their backyards. All that is required to participate is a 4" diameter plastic rain gauge, a ruler to measure snow, an internet-connected computer or cell phone, and most importantly, the desire to watch and report weather conditions.

CoCoRaHS citizen scientists read their rain gauge and measure any snow at the same time each day (preferably between 5 and 9 AM). Measurements are uploaded by the observer to the CoCoRaHS website (www.cocorahs.org), where they can be viewed in tables and maps. Training is provided online and in occasional group sessions held throughout the state.



Center on Global Energy Policy at COLUMBIA | SIPA

TESTIMONY OF

ABRAHAM SILVERMAN

DIRECTOR OF THE NON-TECHNICAL BARRIERS TO THE CLEAN ENERGY TRANSITION INITIATIVE AT COLUMBIA UNIVERSITY'S CENTER ON GLOBAL ENERGY POLICY

March 11, 2024

Good morning Chairman Smith, Chairman DeAngelo, members of the Committees.

My name is Abraham Silverman, and I lead the Non-Technical Barriers to the Clean Energy Transition initiative at Columbia University's Center on Global Energy Policy. I want to thank you for your invitation to testify here today. Previously, I had the honor of serving as the General Counsel and Executive Policy Counsel with the excellent team at the New Jersey Board of Public Utilities. However, my comments today represent my own views.

I'd like to commend the Committees for putting these two bills up for discussion today, because a successful decarbonization strategy requires both an affordable supply of carbon-free electricity *and* a strong, resilient, distribution grid to carry that clean electricity to our homes and businesses.

My testimony on grid modernization covers three main topics this morning:

1. What is "grid modernization" and why is matters;
2. What topics are covered by an effective grid modernization program; and
3. How commitment of general funds can help keep rates affordable.

I will then close with a few comments on the 100 percent clean energy standard and why transitioning from a Renewable Portfolio Standard to a Clean Energy Standard may be a good choice for New Jersey; how grid reliability is preserved under a 100 percent clean standard; and some of the innovative features of the proposed legislation.

28x

1. What is Grid Modernization and Why is it Important?

The distribution grid is "the backbone on which all other efforts to transition to a clean energy economy will rely."[1] Our best estimates are that we will need to approximately double the amount of energy passing through our distribution grid by 2050.[2] Grid modernization generally refers to the process of preparing the distribution system to meet these future needs.

North Carolina State makes the point that grid modernization "lacks a universally accepted definition" but generally refers to "actions making the electricity system more **resilient, responsive,** and **interactive.**"[3]

Tackling grid expansion needs up front avoids the problem of having utilities make multiple small upgrades when one larger project would be faster or achieve significant economies of scale. One of the most significant steps that we can take to accelerate benefits of grid modernization is to identify the places where more electricity is likely to be needed and then proactively build the grid out to meet those needs. There is significantly evidence that a proactive buildout of the grid results in significantly lower total costs than the piecemeal approach to grid expansion that we have today.[4]

Not only do we lose an opportunity to reduce costs, but inadequate distribution infrastructure comes at a substantial direct cost to ratepayers and green jobs, as well. For example, there are currently a number of "closed circuits" in the State where installation of new distributed solar facilities is effectively prohibited. Solar developers incorporate the risk of closed circuits into their development costs, meaning that the price of solar renewable energy certificates rises. Green jobs are lost when electricians and homebuilders are told that electric vehicle or heat pump installations are delayed. Economic development efforts are harmed when new loads, such as advanced manufacturing or data centers, are delayed because of inadequate access to distribution capacity.

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[1] New Jersey's 2019 Energy Master Plan.

[2] *See* 2019 Energy Master Plan.

[3] *See* North Carolina State University's Clean Energy Technology Center https://nccleantech.ncsu.edu/2023/04/27/the-50-states-of-grid-modernization-q1-2023-states-address-microgrids-resilience-and-low-income-rate-reforms-during-q1-2023/

[4] *See, e.g.*, Comments of the New Jersey Board of Public Utilities to the Federal Energy Regulatory Commission in Docket No. RM21-17-000 (filed August 17, 2022) (citing examples of cost savings attributable to planned transmission).

29x

There are also significant reliability benefits from a stronger distribution grid. Everyone in New Jersey who lived through Super Storm Sandy remembers the cost of an underbuilt distribution grid, and an improved distribution grid can help.

2. What topics are covered by an effective grid modernization program?

I find it helpful to divide grid modernization efforts into three main topic areas:

1. expansion of traditional utility infrastructure (i.e., "poles & wires") in places where more capacity is needed to meet state electrification and other policies;[5]

2. utility deployment of advanced technologies on the distribution system that may reduce the need for more poles and wires; and

3. Changes to the regulatory framework that incentivize utilities and customers to make investments that defer additional grid upgrades or make the distribution grid stronger or more efficient, including non-wires alternatives.[6]

While investment across all three of these areas will likely be necessary, the Legislature should take care to ensure that investment in traditional poles & wires solutions does not crowd out investment in technological or market alternatives that may provide better customer outcomes. The fact is that traditional ratemaking rewards utilities for spending more, which can lessen the utility's interest in exploring lower cost options. This is particularly true when those options include some element of operational or technology risk that could lead to future disallowances.

Mitigating this tendency will require careful oversight of the utility's grid modernization filings. One potential option is to mandate that utilities compare the cost of traditional poles & wires solutions against a set of possible alternatives in their filings with the Board of Public Utilities. For example, the Board could require utilities to evaluate the cost effectiveness of alternatives including at least the following:

[5] *See* 2019 Energy Master Plan, Goals 5.1.1 and 5.1.2.
[6] *See* 2019 Energy Master Plan, Goal 5.1.1.

30x

- Advanced reconductoring of distribution lines (i.e., upgrading existing power lines with new wires that transmit approximately twice the amount of power);

- installation of grid enhancing technologies (also known as "GETs"); and

- enabling non-wire alternatives (i.e., energy storage, demand response, energy efficiency, or distributed energy resources that alleviate power line constraints).

One option that has been gaining traction nationally is to financially reward utilities for adopting advanced technologies on the distribution grid.[7] The Board of Public Utilities could, for example, be provided the discretion to provide a higher return on equity for investments that utilize the advanced technologies.

I will share the concern that the short timeline proposed in the legislation may make such careful evaluation of alternatives difficult and could lead utilities to make proposals that are overly reliant on poles & wire solutions. The short evaluation period could also freeze third parties wishing to propose alternatives to the utility's proposal out of the process, as the schedule mandated in the legislation likely would make such advocacy difficult. Additional flexibility in compliance timelines may, in this case, lead to better outcomes.

3. Funding of Distribution Upgrades

One particularly innovative aspect of this gid modernization legislation is the idea of using general fund dollars to support grid modernization efforts. This portion of the proposal is appealing for two main reasons. First, it potentially unlocks federal matching funds coming out of the Inflation Reduction Act and Infrastructure Investment and Jobs Act.

Second, the proposal to include $300 million in general funds to support this work is particularly important. A significant risk of the clean energy transition is that fundamentally retooling the grid for a 21st Century clean economy may put electricity service further out of the financial reach of

[7] *See, e.g.*, Montana's first-in-the-nation law encouraging the use of advanced reconductoring and allowing for enhanced utility earnings. https://leg.mt.gov/bills/2023/HB0799/HB0729_2.pdf.

31x

low- and moderate-income customers.[8] Supplementing ratepayer investments with tax payer funds is an important tool for keeping the grid affordable for everyone, particularly as we encourage customers of all income levels to move an increasing share of their energy consumption to the electric grid.

The Clean Energy Standard:

I would also like to briefly address the proposal to move New Jersey from a Renewable Portfolio Standard (RPS) to a Clean Energy Standard (CES). Renewable Portfolio Standards or Clean Energy Standards are currently in place in 29 states, plus the District of Columbia. According to the Department of Energy, approximately 30 percent of all renewable energy growth in the United States since 2000 is attributable to state RPS requirements, with much of that growth concentrated in the Northeast and Mid-Atlantic areas.[9]

Let me start by talking about where are today. As of 2024, we currently generate approximately 40 percent of our electricity from in-state nuclear today. In addition, we procure Class I Renewable Energy Credits (RECs) equal to approximately 25 percent of the State's total energy consumption.

There are two recent trends of note: first, 17 states now have a 100% clean energy or renewable energy requirement. Second, 15 states have moved from an RPS structure to a CES structure between 2017 and 2023. The pending legislation, as well as Governor Murphy's Executive Order 315, is thus very much within the mainstream of policy options.

I will not talk about how an RPS and a CES work, how they are similar, and how they differ. The most important feature of either a CES or an RPS is how aggressive and soon the target is established. Both programs require load serving entities (including both the utilities and third-party suppliers) to retire "renewable energy certificates" (REC) or "clean energy attribute certificates" (CEAC) in an amount equal to total amount of load they serve. One REC represents the property rights to the environmental non-power attributes of renewable electricity generation.[10] Retirement of a REC or CEAC signifies that the environmental attributes have been claimed and cannot be resold or used by someone else.

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[8] *See* https://www.energypolicy.columbia.edu/publications/energy-insecurity-in-the-united-states/

[9] https://emp.lbl.gov/publications/us-state-renewables-portfolio-clean

[10] EPA Definition: https://www.epa.gov/green-power-markets/renewable-energy-certificates-recs.

32x

Further it's important to recognize that preserving grid reliability is a collaborative process between utilities, our regional grid operator, known as PJM Interconnection, and state and federal regulators, and is not directly impacted by the Clean Energy Standard legislation. PJM's market is designed to ensure that reliability is preserved and operates independently of any Clean Energy or Renewable Portfolio Standard.

There primary benefit of a Clean Energy Standard over a comparable RPS structure is the introduction of additional competition to supply our clean energy needs. While an RPS program is open only to renewable resources, the CES allows nuclear, clean hydrogen, and other zero-carbon to compete to supply clean energy. This is particularly attractive to a state like New Jersey that has long relied on nuclear resources.

There are three additional features of the CES program proposed in New Jersey that are worth highlighting. *First*, the definition of "clean" matters and the carbon content of a generator should reflect the total up-stream and direct carbon emissions. *Second*, the program adopts a goal of moving past megawatt-hour matching to ensure that the generation resources we rely on to supply our electricity are clean by 2045. This focus on capacity as well as energy is innovative and should be supported. *Third*, the legislation also proposes to reward generators that provide higher-quality RECs or CEACs by providing them an additional compliance credit. This innovative procedure has the potential to increase the impact of the CES program.

Finally, there has been extensive discussion of the role of in-state generation in meeting our clean energy needs. One of the important features of the CES is that the State's preferred in-state generation resources – including offshore wind, in-state solar, and nuclear, among others – are given a strong preference in the CES. Out-of-state resources only compete to fill in the demand for clean energy that is not specifically delegated by the Legislature, ensuring that in-state resources continue to supply the majority of the State's clean energy needs. If there is a shortage, the proposed legislation allows the Board of Public Utilities to procure additional resources, including in-state resources.

33X

New Jersey Resources

TO: The Honorable Members of the New Jersey Senate Energy and Environment and Assembly Telecommunications and Utilities Committees

FROM: Larry Barth
Director of Corporate Strategy
New Jersey Resources

RE: **Testimony pertaining to Senate Bills 237 and 258**

DATE: March 11, 2024

New Jersey Resources (NJR) appreciates the opportunity to comment on Senate Bills 237 and 258, bills that address a 100% Clean Energy Standard (CES) and electric grid modernization.

NJR is a diversified energy company whose core subsidiaries include New Jersey Natural Gas and NJR Clean Energy Ventures. NJR supports New Jersey's climate and emissions reduction goals and is committed to playing a leading role in our State's clean energy journey. We have made meaningful progress on this front and have taken real action:

- New Jersey Natural Gas (NJNG) provides safe, reliable, affordable energy to nearly 600,000 customers in Monmouth, Ocean, Morris, Sussex, and Burlington counties. As a result of the investments our company has made in the safety, reliability and emissions reduction on our distribution system, NJNG today operates the most environmentally sound natural gas distribution system in New Jersey, as measured by leaks per mile.

- NJR Clean Energy Ventures – or CEV – is one of the largest clean energy companies operating renewable assets in the State. CEV has invested more than $1.1 billion in nearly 430MW of portfolio projects in state – enough solar power to reduce over 400,000 tons of GHG emissions every year right here in New Jersey, and a clear sign of our commitment to being a partner in achieving New Jersey's renewable goals.

First, as a matter of process in our response, the bill content of S237 as posted for this hearing is consistent with the version of this legislation introduced on August 8, 2022 of last legislative session as S2798. Since that time and, pursuant to Governor Murphy's Executive Order 315 (issued in February of 2023) calling for a 100% clean electricity standard, a new draft version of S2798 in alignment with the terms of that Executive Order was circulated in November 2023 but never introduced.

It is that November draft that we will comment on today. Consistent with our comments previously submitted on S2978 in the last legislative session, we remain concerned this bill will

export billions of dollars from New Jersey ratepayers to subsidize jobs out of state without any real reductions in emissions.

Furthermore, as it pertains to the goals of S237, a critical missing piece in New Jersey's energy planning is an understanding of the magnitude of the scope and cost associated with upgrades needed to the distribution system in order to meet the State's 2050 emission reduction goals.

We respectfully offer the following recommendations below:

First, as a lifeline energy provider in New Jersey, we know any decarbonization strategies adopted in this State must be part of a comprehensive integrated distribution resource plan.

Integrated distribution plans include frameworks for joint gas-electric system planning and coordination across New Jersey's dual energy system. This will provide critical transparency into how both systems can contribute to a more affordable, reliable, and decarbonized energy system.

Integrated gas-electric planning is consistent with the efforts underway in the PJM regional transmission organization and in other regional electric system operators under the Federal Energy Regulatory Commission's jurisdiction, which acknowledge the essential role of both systems in meeting system reliability, and the reliability risks of inadequate resource planning.

Just as the Grid Modernization bill seeks to bring federal funds into the State, gas utilities should also be encouraged to propose programs that leverage gas infrastructure in projects which improve the reliability and resiliency of the electric system, reduce emissions cost-effectively and that leverage significant new avenues of federal funding that have become available in recent years, in particular through the Inflation Reduction Act.

- For example, innovative projects that deploy combinations of fuel cells, clean fuels, or hybrid heat technologies in urban microgrids, mission-critical public or commercial facilities, can respond to peak demand conditions, or shift loads at times of stressed grid conditions.
- Though not broadly discussed in these comments, we offer for the Committees' consideration the recently introduced S2827 (Singleton) as legislation that would directly address this matter. Known as the "Emissions Reduction Innovation Act", the bill enables gas utility decarbonization investment with a high standard of transparency and accountability for cost-effectiveness, consideration of ratepayer impacts, and emission reduction efficacy.

A commitment to decarbonization on both New Jersey's gas and electric systems, alongside critical integrated and coordinated system planning, will drive emissions reductions while

minimizing customer cost impacts and ensuring essential energy reliability for all New Jerseyans.

Integrated distribution plans should be based on a granular, comprehensive assessment of the current state of the electric distribution system infrastructure, considering new grid modernization technologies, alternative scenarios of demand growth reflecting consumer choice, as well as an estimate of the costs required over time to manage loads.

Chairman Smith has pre-filed bill S-236, which requires that integrated distribution plans be submitted, and in the interest of prioritization and focus we believe it is essential that any independent grid modernization legislation be considered within the broader, longer term scope of S-236.

Our second recommendation, specific S2978, is that a Clean Electricity Standard should prioritize in-state renewable energy resources with a firm megawatt (MW) commitment to solar through 2035.

Any new clean electricity standard in New Jersey must include a firm annual solar MW commitment, consistent with the State's previously stated solar capacity goals of 17 GW by 2035. We agree with previously submitted calculations and comments from the solar industry and among the building trades and other labor unions that without firm and enforceable targets, the 65 percent in-state requirement proposed in the bill does not signal a commitment to the state's solar industry.

This commitment is necessary to ensure New Jersey dollars stay in New Jersey to support green jobs, economic development, and localized emissions reductions benefitting New Jerseyans. These in-state benefits should take **priority** over the procurement of out-of-state clean energy credits.

Federal subsidies have been extended for solar, giving New Jersey the opportunity – through the continued support of the solar industry – to capture maximum benefit from the Inflation Reduction Act.

Our final recommendation is that any new clean energy credits procured from out-of-state resources must result in real emissions reductions in order to count toward New Jersey's decarbonization goals.

Reducing actual carbon emissions in the power sector requires building more renewables, not simply buying credits from existing projects. As stated above, we believe taxpayer or ratepayer dollars used for these purchases should prioritize projects in New Jersey that keep jobs, economic growth, and emissions reduction within New Jersey to benefit New Jerseyans.

New Jersey Resources

Policy Must Align Emissions Reductions Accounting with NJDEP's Greenhouse Gas Inventory Methodology

A critical concern with S2978 starts on page one of the draft legislation, with the statement that New Jersey is currently on track to satisfy 75 percent of its annual energy usage by 2025 through non-emitting sources of generation.

This statement has been made in various public forums, falsely implying that our emissions reduction work is nearly complete.

This is a fundamentally inaccurate representation of the actual emissions in the power sector in New Jersey, and is a misleading foundation upon which to base the policies promoted in this bill.

Today less than 40% of New Jersey's electricity consumption is provided by non-carbon emitting sources. Of that 40%, more than 90% comes from nuclear plants in operation since 1986.

According to the New Jersey Department of Environmental Protection in its latest GHG inventory report:

- The electric generation sector emits 19.7 MMT of CO2, with 4.8 MMT coming from imported electric generation.
- This is an increase from 18.0 MMT total electric generating sector emissions in 2017.
- Additionally, emissions from imported fossil generation via PJM have increased from 0 in 2017 to 4.8 MMT in the latest inventory.

In order to avoid merely shifting emissions from New Jersey electricity consumption to out-of-state generation, policymakers must recognize and understand that New Jersey participates in a regional electricity grid interconnection known as the PJM Regional Transmission Organization (RTO). Unlike other single-state RTOs in California and New York that serve one state, PJM serves 13 states in a wide area with diverse energy infrastructure, generating sources and priorities in energy and climate policy.

Under the Global Warming Response Act, the NJDEP is granted the authority for determining the official State emissions GHG inventory each year. The agency is required to account for emissions from electricity generated inside New Jersey, as well as imports into the State from other states within PJM.

In contrast to the claims that New Jersey's power sector will be 75 percent decarbonized by next year, NJDEP, appropriately, does not count out of state Class 1 REC's when completing the

annual GHG inventory. The emissions rate NJDEP attributes to PJM imports already includes the impact of any PJM cited renewables.

More significantly, the out-of-state Class 1 Renewable Energy Certificates (RECs) New Jersey purchases, as required by the Renewable Portfolio Standard under current policy, cannot be demonstrated to have any direct impact on out of state emissions.

The vast majority of NJ Class 1 RECs are purchased from wind farms in Illinois, Indiana, Ohio, and Pennsylvania which were primarily installed in the past. There is no evidence that the New Jersey's Class 1 REC program stimulated the development or construction of any of these projects.

Policymakers should be aware that under today's policy – before adding an additional requirement to purchase new renewable credits – the costs of our Class 1 REC purchases are expected to reach an estimated $750 million by 2025, up from $180 million in 2022, driven by the increase in our Class 1 Renewable Portfolio Standard requirements to purchase out of state RECs.

There is no requirement in S2978 for a new credit instrument - CEAC credits – to come from **new** renewable projects in New Jersey or elsewhere. Buying credits from projects that are already operating does not result in reduced emissions.

Before we introduce the CEAC as proposed in this bill, which is an additional energy credit similar to the Class 1 REC, we should make improvements to the structure to ensure that our purchases result in tangible, incremental emissions reductions.

Additionality Criteria Essential to Ensure Real Emissions Reductions vs. Paper Credit Purchases

A critical way to achieve this is to ensure a high standard of additionality in credit purchases through the program.

The criteria to qualify for additionality includes the following key components.

- The sources designated to supply clean energy to New Jersey must come from dedicated newly constructed renewable generation.
- New Jersey funds the capital cost of the designated resource associated with the clean electricity it imports.
- Out of state renewable generation is counted as zero emissions **only** if the renewable resource designated to supply energy to New Jersey is simultaneously producing those

megawatts hours in PJM, and if in that hour of production, New Jersey has available transmission capacity.

These criteria are consistent with how the emission reductions from out of state renewables were counted towards New Jersey emission reduction goals in this Administration's 2019 Energy Master Plan. This is also consistent with standards adopted by the IRS to ensure that electricity used to produce green hydrogen comes from renewable sources.

In Conclusion

As a leading energy provider and employer in the State of New Jersey, NJR has a major interest in supporting the Legislature's commitment to our State's economic growth alongside a commitment to ensuring our State's environmental goals are met.

Through thoughtful planning and innovation, we can achieve those goals with urgency and in a way that – with transparency and accountability – clearly connects investment to real, tangible emissions reductions within New Jersey. One clear example of this approach is the Emissions Reduction Innovation Act recently introduced as S2728 (Singleton). It provides a clear framework, founded on accountability for cost-effectiveness and emissions reduction in New Jersey based on NJDEP methodologies, to marshal the State's gas distributions utilities to put forward and invest in clean energy innovation projects.

We urge the Honorable Members of the Legislature to ensure this bill – and any other climate or clean energy legislation that may come before it – similarly results in actual environmental benefits and emissions reductions, ensures reliable service, is transparent in cost and customer impact, and supports a stronger renewable economy in New Jersey.

Thank you, Chairmen and Members of the Committees, for your time and leadership on this very important issue.

/s
Larry Barth
Director of Corporate Strategy
New Jersey Resources

NRG Energy, Inc.
804 Carnegie Center
Princeton, NJ 08540

MARCH 11, 2024 TESTIMONY OF

ROBERT GIBBS
DIRECTOR, GOVERNMENT AFFAIRS FOR
NRG ENERGY, INC.

BEFORE THE

SENATE ENVIRONMENT & ENERGY/ASSEMBLY TELECOMMUNICATIONS & UTILITIES COMMITTEES

Good morning Chairman Smith, Chairman DeAngelo, and members of the Senate Environment & Energy and Assembly Telecommunications & Utilities Committees. My name is Robert Gibbs and I am the Director, Government Affairs for NRG Energy, Inc. ("NRG").

NRG is the leading essential home services company powered by its customer-focused strategy, strong balance sheet, and comprehensive sustainability framework. A Fortune 500 company, NRG brings the power of energy to millions of North American customers. Our family of brands help people, organizations and businesses achieve their goals by leveraging decades of market expertise to deliver tailored energy solutions. Our retail brands serve more than six million customers across North America, including here in New Jersey, where NRG owns ten (10) companies that are licensed by the Board of Public Utilities ("Board") to serve retail customers.

NRG supports efforts to decarbonize the energy sector provided those efforts are primarily driven through (1) technology neutral market mechanisms that support grid reliability and (2) consumer choice principles that consider affordability. S-237 and A-1480 don't quite match these important principles. The bills essentially create a less-flexible mandate of how and when decarbonization should take place. NRG appreciates the utilization of a "renewable energy trading program" as contemplated in the bill. We believe this can be further enhanced by ensuring such a program is based on competitive market principles to achieve the state's goals.

We note that several state utility regulatory commissions, including the New Jersey Board of Public Utilities, are exploring a market mechanism to achieve these goals. As you consider the state's decarbonization goals, we encourage you to ensure that such an approach allows Third Party Suppliers ("TPS") and our customers to choose their method of RPS compliance. This can include utilization of a coordinated regional auction where state policy preferences are reflected. Such a mechanism allows TPS and our customers to voluntarily contribute to decarbonization through self-directed participation—which protects customer choice—while generally respecting each participating state's policy preference as to source (technology). If you tell customers that they can only achieve RPS compliance through X% of nuclear, Y% of offshore wind, and Z% of solar, you're limiting options for customers despite the ability of any combination of those technologies to meet the desired goal of decarbonization. By asking the market to meet the policy preferences with a broader suite of clean technologies in a platform anyone can buy from, you allow customers to choose the path to decarbonization that best fits their needs and price tolerance while still achieving the overall state clean energy goals.

NRG Energy, Inc.
804 Carnegie Center
Princeton, NJ 08540

With regard to S-258, any taxpayer and ratepayer subsidization of public utility grid modernization efforts should incorporate the following policy objectives in order to enable a properly designed smart grid:

1. Establishment of opt-out TOU rates for the Basic Generation Service ("BGS") product. In practice, public utility opt-in TOU rates generally do not generate high participation rates (the "why have dumb rates with a smart grid" conundrum). A default TOU rate is something that PSEG already has experience with, in the service it provides to the Long Island Power Authority, which adopted opt-out, default TOU rates.[1] These rates provide a foundation for demand flexibility and load-shaping, which will be essential to reduce the cost of a grid that relies on a more intermittent supply stack. At the same time, New Jersey customers would continue to be able to opt into a flat rate by shopping for a TPS or a different TOU rate offered by a TPS.
2. Centered on customer consent, ensuring that smart meter collected customer data is shareable with TPS. There is an existing Board proceeding addressing this, but the Board should be encouraged to complete that proceeding as quickly as possible.
3. Consider allowing TPS to use and compensate customers for Virtual Power Plants, aggregated load within Demand Response programs and Distributed Energy Resources ("DER") that can help better manage the grid during peak times. To the extent that New Jersey utilities are allowed to use ratepayer money to subsidize demand-side investments for peak shaving or other purposes, consumers should be allowed to enroll with TPS that co-optimize those investments for further demand flexibility—again driving down energy costs while making the entire system more reliable.

NRG thanks the Chairmen and Members of the Committees for their time and attention today. NRG looks forward to engaging with the Legislature, Governor's Office, and other key stakeholders in finding practical, affordable, and most importantly, reliable solutions to its energy goals.

Thank you. Should you wish to discuss our proposals further, please do not hesitate to contact me at Robert.Gibbs@nrg.com or 908-323-0490.

Respectfully submitted,

Robert L. Gibbs

Robert L. Gibbs
Director – Government Affairs

RLG/*
Cc: Members of the Senate Environment & Energy Committee
Members of the Assembly Telecommunications & Utilities Committee

[1] https://www.lipower.org/time-of-day/

41x

Testimony of Robert Routh, Natural Resources Defense Council
Submitted To
Committee on Environment and Energy, New Jersey Senate
&
Committee on Telecommunications and Utilities, New Jersey Assembly
On S237
March 11, 2024

Chairman Smith, Chairman DeAngelo, and honorable members of the Senate Environment and Energy Committee and the Assembly Telecommunications and Utilities Committee, thank you for the opportunity to testify today. My name is Robert Routh, and I serve as the Pennsylvania Policy Director for NRDC (the Natural Resources Defense Council). NRDC is an international environmental non-profit that works to safeguard the earth—its people, its plants and animals, and the natural systems on which all life depends. Since 1970, NRDC's lawyers, scientists, and environmental specialists have worked on clean energy policy in dozens of states and at the federal level.

I come before you from across the Delaware River because I am filling in for Eric Miller, my counterpart in New Jersey, who could not be here because today is his first official day in his new role with the Murphy administration. Eric will serve as the new Director of Governor Murphy's Office of Climate Action and Council on the Green Economy.

As we have for the past several years, NRDC strongly supports S237 and the establishment of a technology neutral clean electricity standard that will achieve the goal of 100% clean electricity in New Jersey by 2035. Establishing this standard is one of the most important steps that New Jersey can take to combat the climate crisis and decrease air pollution that harms the well-being of New Jersey's residents. This legislation is critical because, not only will it reduce emissions from our power sector, it will also provide clean electricity to decarbonize our buildings and vehicles as well.

We understand that the bill before the joint committees today is just one part of last session's more comprehensive legislation that sought to establish a CES that met the requests of the labor community, environmental justice allies, and project developers. We remain confident in our position that last session's more comprehensive bill would make New Jersey a clean energy powerhouse, create thousands of new in-state jobs, provide a guaranteed pathway to reduce emissions in overburdened communities, and ensure affordability for New Jersey ratepayers. This bill, as it sits today, is a significant step in the right direction, and still provides many of the benefits to New Jersey that last session's bill did.

First, it enshrines into law a 100% by 2035 standard—that alone is critically important. This will steadily reduce CO2 emissions and co-pollutants over the next decade and beyond. It will ensure that the electricity that powers our homes and, increasingly, our vehicles, is clean.

Second, this legislation will increase economic development and grow the number of in-state clean energy jobs. According to a 2023 report by Environmental Entrepreneurs or E2, which is included with my written testimony, New Jersey is the fourth-fastest growing state for clean energy jobs. The growth of the clean energy sector is outpacing the rest of the NJ economy by 36%, and three out of five new energy jobs in NJ are in the clean energy

sector. This did not happen by accident; it's the result of smart policy, like the Clean Energy Act of 2018, which established our current Renewable Portfolio Standard of 50% renewable energy by 2030. The CES established by this bill would take us even further.

Third, the bill adopts a strong standard for what counts as "clean energy"—the inclusion of co-pollutants in the definition is an important step to ensure that low-carbon or carbon free resources capable of producing other pollutants that harm human health will not receive credits under this standard. This would make New Jersey a national leader in reducing co-pollutants alongside GHG emissions.

Fourth, S237 is technology neutral. A technology neutral standard allows New Jersey to achieve its targets by leveraging technologically and geographically diverse resources. It leaves room for innovation by project developers, and it drives towards more competitive projects, ensuring that electric rates are more affordable. Finally, a technology neutral standard provides more flexibility and resiliency to achieve NJ's targets—no single type of project or resource could cause New Jersey to miss its targets under this bill.

This conclusion is supported by NRDC's own modeling on a 100% CES Target, a copy of which is also included with my written testimony. We used our Integrated Planning Model (IPM) to look at this legislation and the significant impacts of the federal Inflation Reduction Act's clean energy provisions. NRDC's modeling found that:

- A 100% Clean Electricity Target can be met through a diverse set of resources and steadily decrease CO2 and co-pollutant emissions over the next 10 years.
- Our current RPS target of 50% by 2030, and our nuclear fleet make us well-positioned to achieve a 100% target with additional policy signals.
- We keep our existing gas and nuclear fleets online to retain reliability and affordability.
- This legislation would increase our total in-state generation.
- This legislation would reduce our reliance on both total-electricity imports and out-of-state clean energy o meet our RPS and CES targets. In fact, we found that imports of clean energy drop from 78% today to closer to 20% in 2035.

By every single measure, New Jersey is better off with a CES like the one contained in this bill than without it. For that reason, we urge the Committee to advance this legislation in its next voting session.

In closing, NRDC was proud to be one of the many stakeholders that worked on last session's bill, and we are keenly aware that numerous stakeholders worked in good faith to design a bill that would be perfect for New Jersey. That said, New Jersey has been discussing a 100% by 2035 bill for years at this point, and we cannot let the pursuit of a "perfect" bill prevent us from acting on the opportunity before us now to equitably reduce emissions and increase the share of clean electricity generation in New Jersey. NRDC remains committed to working in good faith with the legislature, the Board of Public Utilities, the Governor's office, and all interested stakeholders on this critical topic moving forward.

Thank you for the opportunity to testify today, and I am happy to answer any questions that committee members may have.

Robert M. Routh, Esq.
Policy Director, Pennsylvania
Climate & Energy Department
rrouth@nrdc.org

Meeting a 100% Clean Energy Standard in New Jersey: *More in-state generation, less electricity imports*

NRDC analysis shows that New Jersey can meet a 100% clean energy target by 2035 through a diverse set of investments. Near-term investment in solar, paired with longer-term wind investments, can help the state meet these ambitious, but achievable, clean energy goals.

Key Findings

- There are numerous pathways NJ can take to meet 100% clean electricity by 2035.
- A 100% CES can increase total in-state generation and reduce New Jersey's reliance on out-of-state electricity.
- Keeps energy affordable by leveraging low-cost renewables and federal funding from the Inflation Reduction Act.
- 15x more in-state renewables by 2035.

New Jersey can achieve a 100% clean energy standard through a mix of resources

NRDC used the STate Emissions Pathway (STEP) tool to analyze potential pathways for the state to achieve a 100% clean energy standard (CES; as a percent of sales) by 2035, while meeting the state's electricity needs.[1] The 100% Clean Energy trajectory is an illustrative pathway to a clean energy future; the State has a number of avenues to achieve 100% clean and this pathway is just one potential, balanced approach.

Our analysis builds off of business-as-usual (BAU) modeling completed by both Rhodium Group and NRDC following the passage of the Inflation Reduction Act. The New Jersey grid is already expected to decarbonize significantly over the next decade thanks to supportive federal and state policies: the two studies estimate that power-related CO2 emissions will fall to 60 to 80 percent below 2005 levels by 2035, even without additional policy. A CES capitalizes on this clean energy opportunity, ensuring that the state takes full advantage of low-cost renewables.

NRDC's analysis finds that a phased build-out of new solar and wind resources can meet both the state's existing renewable target of 50% renewable energy by 2030 and a 100% clean energy target by 2035 (Table 1). Under the illustrative CES scenario, the state sees early deployment of solar during this decade, with new investment in offshore wind starting in 2030, to have a total of 18 GW of grid-scale wind and solar resources online by 2035.[2]

Table 1. Capacity Outcomes under the Illustrative CES Scenario

In GW	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Fossil	13,087	13,087	13,087	13,087	13,087	13,087	12,736	12,736	12,736	12,601	12,349	12,349	12,349
Nuclear	3,457	3,457	3,457	3,457	3,457	3,457	3,457	3,457	3,457	3,457	3,457	3,457	3,457
Hydro	12	12	12	12	12	12	12	12	12	12	12	12	12
Solar	1,016	1,091	2,019	2,750	3,500	4,500	6,000	7,500	8,500	9,500	10,500	12,000	13,000
Wind	8	8	8	8	8	8	8	1,100	2,800	2,500	3,200	3,800	5,000
Storage	501	539	626	644	644	644	644	644	644	645	646	1,276	2,796

[1] The STEP tool is an excel-based tool designed by ERM to evaluate alternative pathways to achieving economy-wide GHG reduction goals and future clean energy targets.

[2]

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These new investments in clean energy can increase total in-state generation and reduce net imports, even as the state's total electricity demand increases as the transportation system electrifies (Figure 1). The state also currently relies heavily on out-of-state renewable energy certificates (RECs) to meet its existing renewable energy targets. **This phased build-out of new wind, solar, and storage gradually reduces the state's reliance on out-of-state RECs over the next decade** (Figure 2). By 2030, more than half of the state's 50% renewable energy requirement is met with in-state renewable resources. By 2035, about 70% of the total clean energy requirement is met with in-state renewables and nuclear generation.

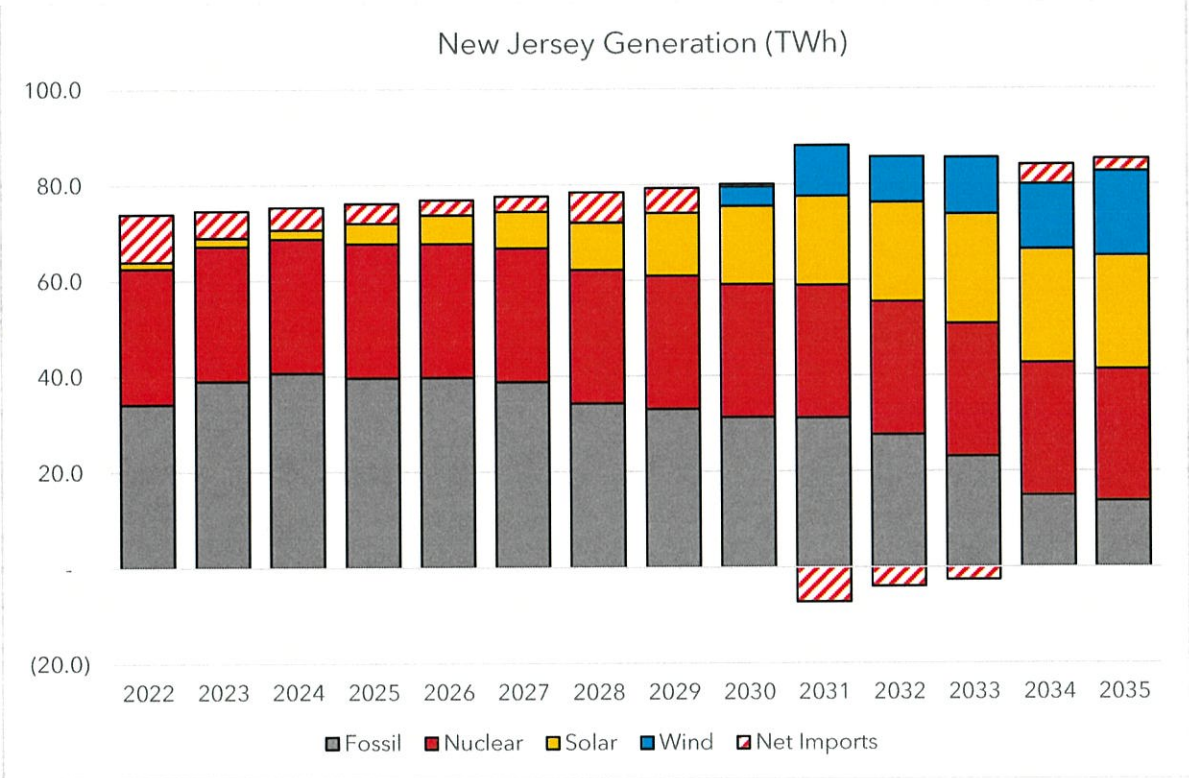

Figure 1. Projected Generation Under an Illustrative CES Scenario

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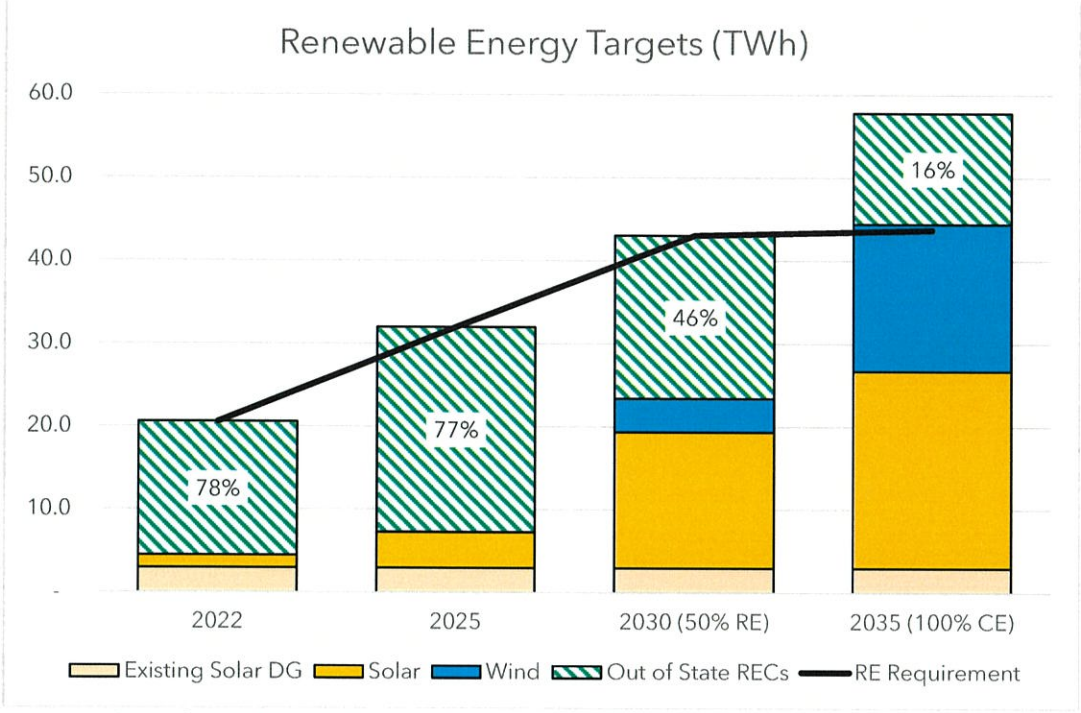

Figure 2. Compliance Approach under Illustrative CES Scenario.
Note: Existing Solar DG from EIA Electric Power Monthly for Year End 2022 (February 2023).

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Methodology

The STEP tool is an excel-based application designed to evaluate alternative pathways to achieving economy-wide GHG reduction goals and future clean energy targets. The tool is highly customizable, allowing users to implement a wide array of policy interventions across the electric, transportation, industrial, residential, and commercial sectors (and related sub-sectors). Results are generated in real-time through changes made by the user and displayed in a variety of charts and tables to help support high level policy making

ERM has made the tool available to U.S. states and cities at no charge. NRDC's version of the STEP tool was last fully modified August 2022 and is based off of EIA's Annual Energy Outlook 2022.

Key Sources

Assumption	Source
Demand	NRDC Analysis with STEP Tool (AEO 2022) adjusted for EV penetration from NRDC-NEMS 2023 BAU (IRA + State policy)
Nuclear Generation	Rhodium Group Taking Stock Report 2023
Fossil + Renewable Generation	NRDC Analysis with STEP Tool, based on capacity and utilization trends by fuel and technology from Taking Stock 2023 and NRDC's Integrated Planning Model (IPM) IRA modeling.
Renewable Capacity Factors	Rhodium Group Taking Stock Report 2023
Existing RE + EERS Policy	STEP Tool
Existing Solar DG	EIA, Electric Power Monthly, February 2023

ADVANCED ENERGY UNITED™

Senate Environment and Energy Committee
Assembly Telecommunications and Utilities Committee
State House Annex
P.O. Box 068
Trenton, NJ 08625-0068

March 11, 2024

Re: S.237- The Clean Energy Standard

Members of the Senate Environment and Energy Committee and Members of the Assembly Telecommunications and Utilities Committee:

I am writing on behalf of Advanced Energy United (United), a national business association dedicated to advancing the transition to 100% clean energy and electrified transportation in the United States. United represents more than 100 companies in the $374 billion U.S. advanced energy industry, which employs 3.2 million U.S. workers, including roughly 140,000 energy workers in the Garden State in 2022.

I am writing to express United's support for S.237 to advance New Jersey's shift to clean energy and serve as a market signal for investment. S.237, referred to as the Clean Energy Standard (CES), aims to establish a 100% clean electricity standard for New Jersey by 2035. This bold initiative sets a clear and achievable goal for transitioning our state's energy sector towards cleaner and more sustainable sources of power, and in doing so creates a powerful incentive for investment in renewable energy infrastructure.

United firmly believes that the Clean Energy Standard will serve as a catalyst for clean energy businesses in New Jersey. By providing a strong, medium-term policy directive, the bill assures advanced energy companies that the market for their technologies and services will continue to expand in our state. This market certainty is crucial for businesses making investment decisions today about where to focus their resources for the future.

Moreover, the CES aligns with United's mission to promote a diverse portfolio of advanced energy technologies. As outlined in the legislation, advanced energy encompasses a broad range of products and services, including electric vehicles, energy efficiency, demand response, energy storage, solar, wind, hydro, nuclear, and smart grid technologies. By

embracing this diverse array of clean energy solutions, New Jersey can position itself as a leader in the transition to a cleaner, more sustainable energy future.

In addition to driving long-term investment and economic development in the state, the CES will also help reduce greenhouse gas emissions, improve air quality, and help lessen the threat of extreme weather events. By transitioning to clean energy sources, we can create a healthier and more resilient future for all New Jerseyans.

United thanks the committee for its consideration and urges you to support S.237 and take decisive action toward advancing the transition to 100% clean energy in New Jersey. Together, we can build a more sustainable and prosperous future for our state and future generations. Please reach out with any questions on this or other clean energy issues.

Signed,

Kristina Persaud
Senior Policy Principal
Advanced Energy United

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Environmental Defense Fund

NRDC NATURAL RESOURCES DEFENSE COUNCIL

Environmental Defense Fund and Natural Resources Defense Council's Testimony on S258
For Joint Assembly Transportation and Independent Authorities Committee and Senate Environment and Energy Committee Hearing – March 11, 2024

Good morning. I'm Karla Sosa, Environmental Defense Fund's New Jersey Policy Manager, testifying on behalf of EDF and NRDC. I want to thank all the members present here today for your time and for this hearing, and especially thank Senator Smith and his staff for once again bringing forward the pressing issue of grid readiness.

I don't need to underscore the importance of the electric grid in our lives: a moment of reflection would highlight all ways we rely on it currently and will continue to do so, especially in an electrified future.

And, to be clear, an electrified future will benefit New Jerseyans: Electrifying cars, trucks, buses, and buildings can dramatically lower household energy expenditures, to say nothing of reduced air pollution. And electrification done correctly can actually improve the utilization of the grid, putting downward pressure on rates, to the benefit of all utility customers. Much of this can be done with existing grid capacity, but some strategic and proactive investments are needed to ensure the grid can support electric vehicles and buildings while being flexible enough to interconnect distributed energy resources like solar.

And we need to start today to build the grid we need tomorrow. Grid buildout takes time and the infrastructure typically lasts several decades, so it is extremely important we commit to a path now that will build the grid needed to support a healthy and economically vibrant New Jersey, with reliability and affordability always front of mind. The longer we delay, the harder and costlier it will be to course-correct down the line.

EDF and NRDC believe this bill – with modifications – can lead us on a path of responsible investment. Our amendments are supported by a diverse set of stakeholders, including EnvironmentNJ, ChargEVC, Tesla, and others; they are submitted for your consideration alongside this testimony. These redlines do the following:

1. Require utilities to update their infrastructure planning processes to align with the State's electrification goals. They then direct utilities to update infrastructure deployment and operation procedures to meet these electrification-related needs;

2. Promote the use of technologies such as flexible interconnections, customer-side distributed energy resources, and non-wires solutions, to expedite interconnections and "right-size" investments, keeping buildout affordable.

3. Establish timelines for prompt interconnection and energization of new loads and distributed energy resources;

4. Require utilities to cover reasonable costs of utility-side infrastructure for EV charging, as well as authorizing them to recover certain costs related to projects, while directing they design EV charging rates to promote affordable, equitable, and efficient charging;

5. Require a workforce development pipeline, and establish utility reporting and BPU and stakeholder monitoring.

In short, New Jersey's shift to electrification requires we change our approach – which is currently reactive – to one that identifies and prepares for incoming electric demands. While some of these issues are being explored by the BPU, we believe our amendments would complement those efforts.

We thank you again for engaging with this critical topic. We look forward to working together to arrive at a bill that creates the foundation for an affordable, equitable, modern, and ready grid.

Attached please find EDF and NRDC's redlines for S258, submitted for the committees consideration. For more information, please contact Karla Sosa, New York – New Jersey State Affairs, Environmental Defense Fund, ksosa@edf.org

SENATE, No. 258
STATE OF NEW JERSEY
221th LEGISLATURE

PRE-FILED FOR INTRODUCTION IN THE 2024 SESSION

Sponsored by:
Senator BOB SMITH
District 17 (Middlesex and Somerset)

SYNOPSIS

Requires electric public utilities to develop and implement grid modernization plans; appropriates $300 million.

CURRENT VERSION OF TEXT

Introduced Pending Technical Review by Legislative Counsel.

AN ACT concerning the electric transmission and distribution system, supplementing Title 48 of the Revised Statues, amending P.L.1999, c.23 and P.L.2007, c.340, and making an appropriation.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

1. (New section) As used in sections 1 through 4 of P.L. , c. (C.) (pending before the Legislature as this bill):

"Automated distributed resource management system" means a system that manages distributed generation or load to reduce or eliminate the need for system upgrades or upgrades to electrical infrastructure on the customer side of the service meter.

"Board" means the Board of Public Utilities.

—"Distributed energy resource" means an electricity-producing resource or controllable load, or a Hybrid facility as defined herein, that is connected to an electric public utility's distribution infrastructure.

"Electrical distribution infrastructure" means utility facilities used to distribute electric service to customers, and shall include poles, vaults, service drops, transformers, mounting pads, trenching, conduit, wire, cable, meters, other equipment as necessary, and associated engineering and civil construction work.

—"Electric public utility" means the same as the term is defined in section 3 of P.L.1999, c.23 (C.48:3-51).

"Electrification" means any new, expanded, or change in use of electricity related to the policies described in Section 3, including, but not limited to, in the industrial, commercial, agricultural, housing, or transportation sectors.

"Energization" and "energize" mean connecting new customers to the electrical grid and establishing adequate electrical capacity to provide service for a new customer, or upgrading electrical capacity to provide upgraded service to an existing customer. "Energization" and "energize" do not include activities related to connecting resources that will inject electricity onto the electrical grid.

"Energization time period" means the elapsed time beginning when the electric public utility receives a substantially complete energization project application and ending when the electric service is installed and energized.

~~(j)~~ "Flexible interconnection/energization tariff(s)" means a set of predetermined rules and requirements for expeditiously energizing new load or interconnecting a distributed energy resource to an electric utility's distribution system and that includes an agreement for curtailing the import and export of electricity from and to the distribution system.

—"Grid Modernization Plan," or "plan," means the plan prepared by each electric public utility pursuant to section 2 of P.L. , c. (C.) (pending before the Legislature as this bill), and implemented pursuant to section 3 of P.L. , c. (C.) (pending before the Legislature as this bill).

"Hosting capacity" means the amount of load or distributed energy resources that can be interconnected to the utility distribution system at a given time and at a given location under existing grid conditions and operation without adversely impacting safety, power quality, reliability or other operational criteria, and without requiring upgrades to the utility's distribution or Board-jurisdictional transmission system.

"Hybrid facility" means a facility composed of more than one device of different technology types for the production, storage, and/or consumption of electricity that are located on the same site and have a single point of interconnection and under existing procedures would need to submit separate energization and interconnection requests.

"Interconnection" and "interconnect" mean connecting new Distributed Energy Resources that will inject electricity onto the electrical grid

"Interconnection time period" means the elapsed time beginning when the electric public utility receives a substantially complete interconnection project application and ending when the utility grants approval for the Distributed Energy Resource to begin operating.

"Non-wires alternatives" means the strategic deployment of distributed energy resources by a utility or a third party and associated control or aggregation of systems and technologies intended to cost-effectively defer or avoid the need for distribution grid projects.

"Phased energization agreement" means an agreement between an electric public utility and a customer to provide certain levels of electrical capacity on a guaranteed timeline in exchange for that customer participating in the electric public utility's flexible interconnection tariff while necessary grid upgraded are completed.

"System upgrades" means the additions, modifications, and upgrades to the utility's distribution or Board-jurisdictional transmission system that is necessary to interconnect retail distributed generation or beneficial electrification measures

"Transmission and distribution system" means the same as the term is defined in section 3 of P.L.1999, c.23 (C.48:3-51).

[New Section - **Adoption of New Tariffs and Procedures to Reduce Costs and Delays**]

(a) On or before [insert target date], the Board shall:

(1) Require electric public utilities to establish and make available to customers optional flexible interconnection/energization tariff(s) that include all of the following:

(A) Terms and conditions for limiting the import or export of electricity using automated distributed resource management systems, such as a fixed limitation, a limitation that varies seasonally, or a limitation that varies based on time of day.

(B) Conditions upon which electricity imported or exported from a distributed energy resource can be curtailed by an electric public utility, including the number of allowable hours within a given year a customer may be subject to curtailment under the optional flexible interconnection/energization tariff(s).

(C) Safety certification requirements and other technical specifications to protect electrical grid integrity and worker safety.

(D) The option for customers to enter into a phased energization agreement with the electric public utility.

(2) Require electric public utilities to establish a tariff that authorizes each electric public utility to design and deploy all electrical distribution infrastructure to deliver electric service to customers installing electric vehicle charging stations, other than those in single-family residences. The new tariff shall replace the line extension rules currently used (as of WW) and any customer allowances established shall be based on the full useful life of the electrical distribution infrastructure. The purpose of this section is to change the Board practice of authorizing the electrical distribution infrastructure located on the utility side of the customer meter needed to charge electric vehicles on a case-by-case basis to a practice of considering that infrastructure and associated design, engineering, and construction work as core utility business, treated the same as other necessary distribution infrastructure authorized on an ongoing basis in the electric public utility's general rate case, the costs of which are socialized through base distribution rates and not recovered directly from the customers directly served by the infrastructure.

-(3) Require electric public utilities to establish and make available to customers a procedure for customers with a hybrid facility to complete the interconnection and energization processes through a single application.

[New Section – Timely Energization and Interconnection]

(a) No later than 270 days after the effective date of this act, the Board shall do all of the following:

(1) Adopt reasonable average and maximum target energization and interconnection time periods, to become effective one year after the effective date of this act. The targets shall ensure that work is completed in a manner that minimizes delay in meeting the date requested by the customer to the greatest extent possible and prioritizes work in a manner consistent with Sections 2 and 3. The targets may vary depending on the complexity and magnitude of the work required and uncertainties regarding the readiness of the customer project needing energization or interconnection. The targets may also recognize any factors beyond the electric public utility's control.

(2) Adopt requirements for an electric public utility to report to the Board, at least annually, so that electrical corporation performance can be tracked and improved. Electric public utilities reporting shall include the average, median, and standard deviation time between receiving an application for energizing the electrical service or interconnecting the Distributed Energy Resource, explanations for energization or interconnection time periods that exceed the target maximum for energization or interconnection projects, constraints and obstacles to each type of energization or interconnection such as funding limitations,

qualified staffing availability, or equipment availability, and any other information required by the Board.

(3) Establish a procedure for customers to report energization or interconnection delays to the Board.

(b) If energization or interconnection time periods exceed the Board's target averages or if the electric public utility has a substantial number of energization or interconnection projects that exceed the Board's target maximums, the electric public utility shall include in its report pursuant to paragraph (2) of subdivision (a) a strategy for meeting the targets in the future. The Board may request modification of the electrical corporation's strategy to ensure the electrical corporation meets targets promptly and consistent with the policies set forth in Section 3.

(c) Electrical corporations shall report anonymized or averaged data to the extent necessary to prevent identifying individual customers. The Board shall require all reports to be publicly available.

(d) The Board shall require the electrical corporation to take any remedial actions, including penalties or performance incentives, necessary to achieve the Board's targets.

[New Section – Updating Distribution Planning]

(a) Each electric public utility shall plan, deploy, and operate its distribution system to ensure sufficient hosting capacity to meet all of the following:

(1) Federal, state, regional, and local air quality and decarbonization standards, plans, and regulations.

(2) The transportation and building electrification policies of state law.

(3) State agency, local agency, and local government plans and requirements related to housing, economic development, critical facilities, transportation, and building electrification.

(4) State, regional, and local policies, plans, goals, or requirements designed to increase access to transportation and building electrification in income qualified or overburdened communities.

(b) Consult with disadvantaged communities, environmental and public health experts, vehicle manufacturers, electric vehicle charging companies, fleet customers, labor, and other relevant experts to inform distribution system planning.

(c) Each electric public utility shall consider automated distributed resource management systems and non-wires alternatives that can reduce or eliminate the need for distribution system

upgrades, help lower costs, and encourage customers to charge during times with lower electricity prices and excess grid capacity.

[New Section] – Ensuring a Qualified Workforce to Achieve State Policy

(a) As part of each report required pursuant to paragraph (2) of subdivision (a) of Section 4, and in each general rate case application, each electric public utility shall include a detailed analysis of its current qualified staffing level and future required qualified staffing level for each job classification needed to be consistent with the findings and achieve the policies and requirements of this article.

(b) The Board shall require each electric public utility to have adequate qualified staffing needed to be consistent with the findings and achieve the policies and requirements of this article.

(c) For job classifications that have apprentice training requirements, the Board shall require each electric public utility to maintain a pipeline of apprentices sufficient to meet future qualified staffing needs, subject to any limitations based on safe staffing ratios.

2. (New section) a. No later than one year after the effective date of this act, each electric public utility in the State shall prepare and submit to the board a Grid Modernization Plan. The purpose of the plan shall be to identify the most beneficial, cost-efficient, and practicable projects, to be undertaken by the electric public utility pursuant to section 3 of P.L. , c. (C.) (pending before the Legislature as this bill), to modernize the State's electric transmission and distribution system within the utility's service area.

b. A plan may include, but shall not be limited to, projects and programs that:

(1) integrate energy storage systems into the electric transmission or distribution system;

(2) increase the capacity of the electric distribution system to interconnect distributed energy resources;

(3) encourage customers to charge or discharge electric vehicles and operate zero-emission distributed energy resources in a manner that supports the operation of the electrical grid;

(4) prepare the electric transmission and distribution system to deliver power in accordance with the State's greenhouse gas emissions goals, federal, state, regional, and local air quality and decarbonization standards, plans, regulations, and transportation and building electrification policies;

(5) decrease the risk of power outages, particularly outages caused by storms or other adverse weather events;

(6) improve the resilience of the electric transmission and distribution system against natural hazards associated with climate change, including increased temperatures and flood risk; and

(7) otherwise improve the ability of the electric public utility to provide uninterrupted electric power to customers, given the foreseeable changes in physical and market conditions.

c. A plan shall include a cost estimate for each project or program included in the plan pursuant to (b) and an appropriate timeline for the plan's implementation.

[x] A plan shall also include detailed explanations of

1) How the utility's grid planning, deployment, and operation will conform to the requirements of [Updated grid planning section]
2) How the plan incorporates automated distributed resource management systems and non-wires alternatives that can reduce or eliminate the need for distribution system upgrades, help lower costs, and encourage customers to charge vehicles and otherwise use electricity during times with lower electricity prices and excess grid capacity.
3) How the plan incorporates input from disadvantaged communities, environmental and public health experts, vehicle manufacturers, electric vehicle charging companies, fleet customers, labor, and other relevant experts to inform distribution system planning.
4) Whether and how the plan helps to avoid unnecessary investment in natural gas distribution assets by facilitating higher levels of beneficial electrification.
5) How the utility intends to meet energization and interconnection targets established pursuant to [Timely Energization and Interconnection Section]

d. No later than 120 days after receipt of a Grid Modernization Plan, the board shall approve, conditionally approve, or disapprove the plan and provide written notice of the determination to the electric public utility. The board shall assess a plan on the basis of its ability to achieve the objectives enumerated in subsections a. and b. [and others pending final para numbering] of this section, in addition to the plan's feasibility, cost effectiveness, and expected ratepayer impact considering all available revenue streams. If the board does not provide written notice of the determination made pursuant to this subsection, the plan shall be deemed to have been approved, and the electric public utility shall proceed to implement the plan as provided by paragraph (1) of subsection e. of this section.

e. (1) If a Grid Modernization Plan is approved, the electric public utility shall implement the approved plan within 90 days after receipt of the board's written notice or after

the expiration of the 120-day period established by subsection d. of this section, as the case may be, or within another timeframe agreed to by the board.

(2) If a plan is conditionally approved, the board's written notice shall specify the conditions that are to be satisfied in order for the plan to be deemed approved pursuant to this section. The electric public utility shall implement the conditionally approved plan, in accordance with the conditions specified in the notice, either within 90 days after receipt of the board's notice or within another timeframe agreed to by the board.

(3) If a plan is disapproved, the board's written notice shall be accompanied by a detailed statement describing the reasons for disapproval. Not more than 30 days after receipt of the board's notice, the electric public utility shall submit a revised Grid Modernization Plan to the board, and the board shall approve, conditionally approve, or disapprove the revised plan in accordance with the provisions of this section.

3. (New section) a. No later than 90 days after a Grid Modernization Plan receives approval, or within another timeframe agreed to by the board pursuant to section 2 of P.L. , c. (C.) (pending before the Legislature as this bill), the electric public utility shall commence implementing the plan. The plan shall be fully implemented within the timeframe specified in the plan pursuant to subsection c. of section 2 of P.L. , c. (C.) (pending before the Legislature as this bill). In the event that an electric public utility is unable to fully implement its plan, it shall provide written notice to this effect to the board.

b. Subject to review by the board, an electric public utility shall be entitled to full and timely cost recovery for all costs incurred in the implementation of its plan.

4. (New section) Aligning Cost Recovery with State Policy and the Obligation to Serve

(a) The Board shall ensure that electric public utilities have sufficient and timely recovery of costs to be consistent with the findings and achieve the policies and requirements of this article, including for emergent electrification projects.

(b) If requested by an electric public utility, the Board shall authorize, within 60 days of the request, use of a one-way balancing account or other mechanism that does all of the following:

(1) Authorizes electric public utilities to track costs for emergent energization projects that exceed the costs included in the electric public utility's annual authorized revenue requirement for energization, as established in the electric public utility's general rate case or any other proceeding.

(2) Requires the Board to authorize the recovery of costs tracked within the account through an annual rate adjustment. The costs shall be subject to refund until the Board reviews the reasonableness of the costs in the general rate case or another proceeding.

(3) Requires only costs associated with energization to be included in the account.

~~a. No later than one year after the effective date of this act, the board shall develop a program to provide grants to electric public utilities for the purpose of providing financial relief to ratepayers for rate increases caused by the implementation of a Grid Modernization Plan.~~

~~b. The board shall develop priority ranking criteria for the award of grants under the program. The priority ranking criteria shall provide additional priority for a project that receives funding pursuant to the federal "Infrastructure Investment and Jobs Act," Pub.L. 117-58, or the federal "Inflation Reduction Act," Pub.L. 117-169.~~

~~c. There is established in the Board of Public Utilities a special, nonlapsing fund to be known as the Grid Modernization Ratepayer Relief Fund. Moneys in the fund shall be used by the board solely for the purpose of administering the grant program developed pursuant to this section. The fund shall be administered by the board and shall be credited with:~~

~~(1) moneys that are appropriated into the fund by the Legislature;~~

~~(2) moneys received from the societal benefits charge established pursuant to section 12 of P.L.1999, c.23 (C.48:3-60), as deemed appropriate by the board;~~

~~(3) moneys made available to the board pursuant to the implementation of the Regional Greenhouse Gas Initiative and P.L.2007, c.340 (C.26:2C-45 et seq.); and~~

~~(4) any return on investment of moneys deposited in the fund.~~

[New Section – Rates Designed for EV Charging]

(a) As part of its next general distribution rate proceeding following the effective date of this act, an electric public utility shall submit to the Board a proposal for:

(1) Rates and other price signals that promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure; improve the customer experience associated with electric vehicle charging; accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles; encourage charging that supports the operation of the grid; and appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.

5. Section 12 of P.L.1999, c.23 (C.48:3-60) is amended to read as follows:

12. a. Simultaneously with the starting date for the implementation of retail choice as determined by the board pursuant to subsection a. of section 5 of P.L.1999, c.23 (C.48:3-53), the board shall permit each electric public utility and gas public utility to recover some or all of the following costs through a societal benefits charge that shall be collected as a non-

bypassable charge imposed on all electric public utility customers and gas public utility customers, as appropriate:

(1) The costs for the social programs for which rate recovery was approved by the board prior to April 30, 1997. For the purpose of establishing initial unbundled rates pursuant to section 4 of P.L.1999, c.23 (C.48:3-52), the societal benefits charge shall be set to recover the same level of social program costs as is being collected in the bundled rates of the electric public utility on the effective date of P.L.1999, c.23 (C.48:3-49 et al.). The board may subsequently order, pursuant to its rules and regulations, an increase or decrease in the societal benefits charge to reflect changes in the costs to the utility of administering existing social programs. Nothing in P.L.1999, c.23 (C.48:3-49 et al.) shall be construed to abolish or change any social program required by statute or board order or rule or regulation to be provided by an electric public utility. Any such social program shall continue to be provided by the utility until otherwise provided by law, unless the board determines that it is no longer appropriate for the electric public utility to provide the program, or the board chooses to modify the program;

(2) Nuclear plant decommissioning costs;

(3) The costs of demand side management programs that were approved by the board pursuant to its demand side management regulations prior to April 30, 1997. For the purpose of establishing initial unbundled rates pursuant to section 4 of P.L.1999, c.23 (C.48:3-52), the societal benefits charge shall be set to recover the same level of demand side management program costs as is being collected in the bundled rates of the electric public utility on the effective date of P.L.1999, c.23 (C.48:3-49 et al.). Within four months of the effective date of P.L.1999, c.23 (C.48:3-49 et al.), and every four years thereafter, the board shall initiate a proceeding and cause to be undertaken a comprehensive resource analysis of energy programs, and within eight months of initiating such proceeding and after notice, provision of the opportunity for public comment, and public hearing, the board, in consultation with the Department of Environmental Protection, shall determine the appropriate level of funding for energy efficiency, light, medium, and heavy-duty plug-in electric vehicles, including school buses, and associated plug-in electric vehicle charging infrastructure, [and] Class I renewable energy programs that provide environmental benefits above and beyond those provided by standard offer or similar programs in effect as of the effective date of P.L.1999, c.23 (C.48:3-49 et al.); [provided that the] ~~and ratepayer relief grants issued pursuant to section 4 of P.L. , c. (C.) (pending before the Legislature as this bill). The~~ funding for such programs shall be no less than 50 percent of the total Statewide amount being collected in electric and gas public utility rates for demand side management programs on the effective date of P.L.1999, c.23 (C.48:3-49 et al.) for an initial period of four years from the issuance of

the first comprehensive resource analysis following the effective date of P.L.1999, c.23 (C.48:3-49 et al.), and [provided that] 25 percent of this amount shall be used to provide funding for Class I renewable energy projects in the State. In each of the following fifth through eighth years, the Statewide funding for such programs shall be no less than 50 percent of the total Statewide amount being collected in electric and gas public utility rates for demand side management programs on the effective date of P.L.1999, c.23 (C.48:3-49 et al.), except that as additional funds are made available as a result of the expiration of past standard offer or similar commitments, the minimum amount of funding for such programs shall increase by an additional amount equal to 50 percent of the additional funds made available, until the minimum amount of funding dedicated to such programs reaches $140,000,000 total. After the eighth year, the board shall make a determination as to the appropriate level of funding for these programs. Such programs shall include a program to provide financial incentives for the installation of Class I renewable energy projects in the State, and the board, in consultation with the Department of Environmental Protection, shall determine the level and total amount of such incentives as well as the renewable technologies eligible for such incentives which shall include, at a minimum, photovoltaic, wind, and fuel cells. The board shall simultaneously determine, as a result of the comprehensive resource analysis, the programs to be funded by the societal benefits charge, the level of cost recovery and performance incentives for old and new programs and whether the recovery of demand side management programs' costs currently approved by the board may be reduced or extended over a longer period of time. The board shall make these determinations taking into consideration existing market barriers and environmental benefits, with the objective of transforming markets, capturing lost opportunities, making energy services more affordable for low income customers and eliminating subsidies for programs that can be delivered in the marketplace without electric public utility and gas public utility customer funding;

(4) Manufactured gas plant remediation costs, which shall be determined initially in a manner consistent with mechanisms in the remediation adjustment clauses for the electric public utility and gas public utility adopted by the board; and

(5) The cost[,] of consumer education, as determined by the board, which shall be in an amount that, together with the consumer education surcharge imposed on electric power supplier license fees pursuant to subsection h. of section 29 of P.L.1999, c.23

(C.48:3-78) and the consumer education surcharge imposed on gas supplier license fees pursuant to subsection g. of section 30 of P.L.1999, c.23 (C.48:3-79), shall be sufficient to

fund the consumer education program established pursuant to section 36 of P.L.1999, c.23 (C.48:3-85).

b. There is established in the Board of Public Utilities a nonlapsing fund to be known as the "Universal Service Fund." The board shall determine: the level of funding and the appropriate administration of the fund; the purposes and programs to be funded with monies from the fund; which social programs shall be provided by an electric public utility as part of the provision of its regulated services which provide a public benefit; whether the funds appropriated to fund the "Lifeline Credit Program" established pursuant to P.L.1979, c.197 (C.48:2-29.15 et seq.), the "Tenants' Lifeline Assistance Program" established pursuant to P.L.1981, c.210 (C.48:2-29.30 et seq.), the funds received pursuant to the Low Income Home Energy Assistance Program established pursuant to 42 U.S.C. s.8621 et seq., and funds collected by electric and gas public utilities, as authorized by the board, to offset uncollectible electricity and natural gas bills should be deposited in the fund; and whether new charges should be imposed to fund new or expanded social programs.
(cf: P.L.2022, c.86, s.2)

. 6. Section 7 of P.L.2007, c.340 (C.26:2C-51) is amended to read as follows:

7. a. The agencies administering programs established pursuant to this section shall maximize coordination in the administration of the programs to avoid overlap between the uses of the fund prescribed in this section.

b. Moneys in the fund, after appropriation annually for payment of administrative costs authorized pursuant to subsection c. of this section, shall be annually appropriated and used for the following purposes:

(1) Sixty percent shall be allocated to the New Jersey Economic Development Authority to provide grants and other forms of financial assistance to commercial, institutional, and industrial entities to support end-use energy efficiency projects and new, efficient electric generation facilities that are state of the art, as determined by the department, including but not limited to energy efficiency and renewable energy applications, to develop combined heat and power production and other high efficiency electric generation facilities, to stimulate or reward investment in the development of innovative carbon emissions abatement technologies with significant carbon emissions reduction or avoidance potential, to develop qualified offshore wind projects pursuant to section 3 of P.L.2010, c.57 (C.48:3-87.1), and to provide financial assistance to manufacturers of equipment associated with qualified offshore wind projects. The authority, in consultation with the board and the department, shall determine: (a) the appropriate level of grants or other forms of financial assistance to be awarded to individual commercial, institutional, and industrial sectors and to individual projects within each of these

sectors; (b) the evaluation criteria for selecting projects to be awarded grants or other forms of financial assistance, which criteria shall include the ability of the project to result in a measurable reduction of the emission of greenhouse gases or a measurable reduction in energy demand, provided, however, that neither the development of a new combined heat and power production facility, nor an increase in the electrical and thermal output of an existing combined heat and power production facility, shall be subject to the requirement to demonstrate such a measurable reduction; and (c) the process by which grants or other forms of financial assistance can be applied for and awarded including, if applicable, the payment terms and conditions for authority investments in certain projects with commercial viability;

(2) Twenty percent shall be allocated to the board: to support programs that are designed to reduce electricity demand or costs to electricity customers in the low-income and moderate-income residential sector with a focus on urban areas, including efforts to address heat island effect and reduce impacts on ratepayers attributable to the implementation of P.L.2007, c.340 (C.26:2C-45 et al.) [or] ; to support the light duty plug-in electric vehicle incentive program and the incentive program for in-home electric vehicle service equipment established pursuant to sections 4 and 6 of P.L.2019, c.362 (C.48:25-4 and C.48:25-6)~~; or to provide ratepayer relief grants pursuant to section 4 of P.L. , c. (C.) (pending before the Legislature as this bill)~~ . For the purposes of this paragraph, the board, in consultation with the authority and the department, shall determine the types of programs to be supported and the mechanism by which to quantify benefits to ensure that the supported programs result in: a measurable reduction in energy demand [or] ; accomplishment of the plug-in electric vehicle goals established pursuant to section 3 of P.L.2019, c.362 (C.48:25-3); or effective subsidization of grid modernization projects pursuant to P.L. , c. (C.) (pending before the Legislature as this bill);

(3) Ten percent shall be allocated to the department to support programs designed to promote local government efforts to plan, develop and implement measures to reduce greenhouse gas emissions, including but not limited to technical assistance to local governments, and the awarding of grants and other forms of assistance to local governments to conduct and implement energy efficiency, renewable energy, and distributed energy programs and land use planning where the grant or assistance results in a measurable reduction of the emission of greenhouse gases or a measurable reduction in energy demand. For the purpose of conducting any program pursuant to this paragraph, the department, in consultation with the authority and the board, shall determine: (a) the appropriate level of grants or other forms of financial assistance to be awarded to local governments; (b) the evaluation criteria for selecting projects to be awarded grants or other forms of financial assistance; (c) the process

by which grants or other forms of financial assistance can be applied for and awarded; and (d) a mechanism by which to quantify benefits; and

(4) Ten percent shall be allocated to the department to support programs that enhance the stewardship and restoration of the State's forests and tidal marshes that provide important opportunities to sequester or reduce greenhouse gases.

c. (1) The department may use up to four percent of the total amount in the fund each year to pay for administrative costs justifiable and approved in the annual budget process, incurred by the department in administering the provisions of P.L.2007, c.340 (C.26:2C-45 et al.) and in administering programs to reduce the emissions of greenhouse gases including any obligations that may arise under subsection a. of section 11 of P.L.2007, c.340

(C.26:2C-55).

(2) The board may use up to two percent of the total amount in the fund each year to pay for administrative costs justifiable and approved in the annual budget process, incurred by the board in administering the provisions of P.L.2007, c.340 (C.26:2C-45 et al.) and in administering programs to reduce the emissions of greenhouse gases including any obligations that may arise under subsection a. of section 11 of P.L.2007, c.340 (C.26:2C-55).

(3) The New Jersey Economic Development Authority may use up to two percent of the total amount in the fund each year to pay for administrative costs justifiable and approved in the annual budget process, incurred by the authority in administering the provisions of P.L.2007, c.340 (C.26:2C-45 et al.) and in administering programs to reduce the emissions of greenhouse gases.

d. The State Comptroller shall conduct or supervise independent audit and fiscal oversight functions of the fund and its uses.

(cf: P.L.2019, c.362, s.12)

~~7. There is appropriated from the General Fund to the Grid Modernization Ratepayer Relief fund established pursuant to subsection c. of section 4 of P.L. , c. (C.) (pending before the Legislature as this bill) the sum of $300 million to develop and implement the grant program established by the Board of Public Utilities pursuant to section 4 of P.L. , c. (C.) (pending before the Legislature as this bill).~~

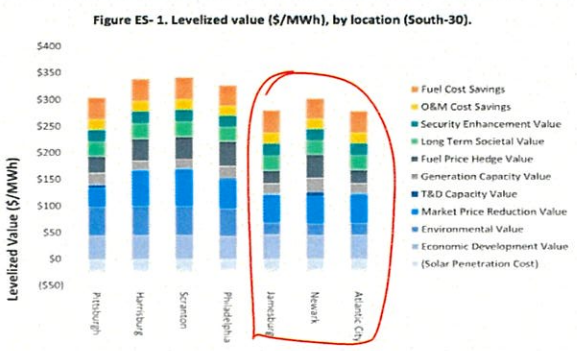
8. This act shall take effect immediately.

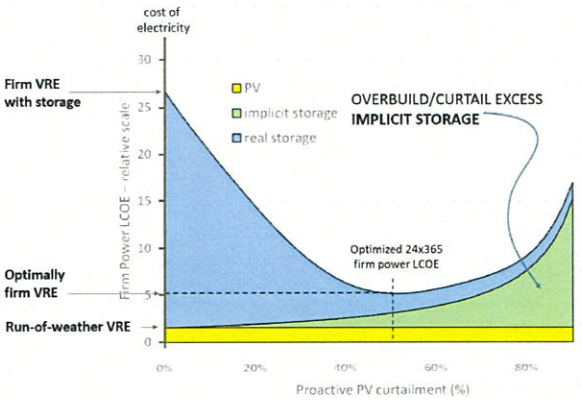
MSSIA
MID-ATLANTIC SOLAR & STORAGE INDUSTRIES ASSOCIATION

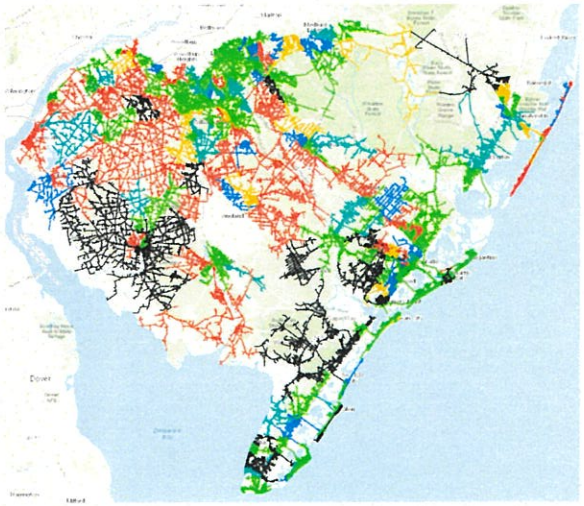
JOINT SENATE-ASSEMBLY COMMITTEE MEETING
MARCH 11, 2024

- VALUING THE BENEFITS OF DISTRIBUTED, IN-STATE SOLAR
- OUTLOOK FOR 2035:
  + CURRENT POLICY SCENARIO
  + S237 SCENARIO
- CHALLENGE: INTERCONNECTION AND GRID MODERNIZATION

LYLE RAWLINGS
PRESIDENT







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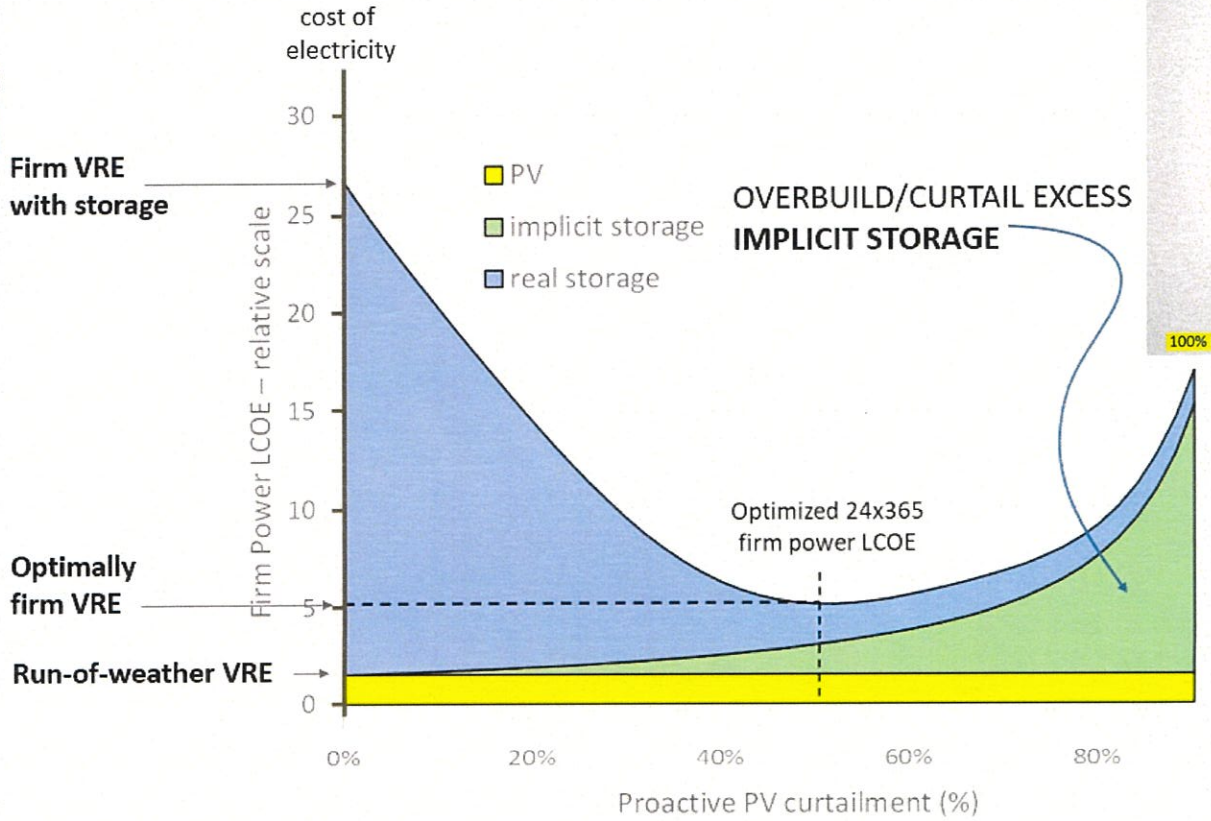
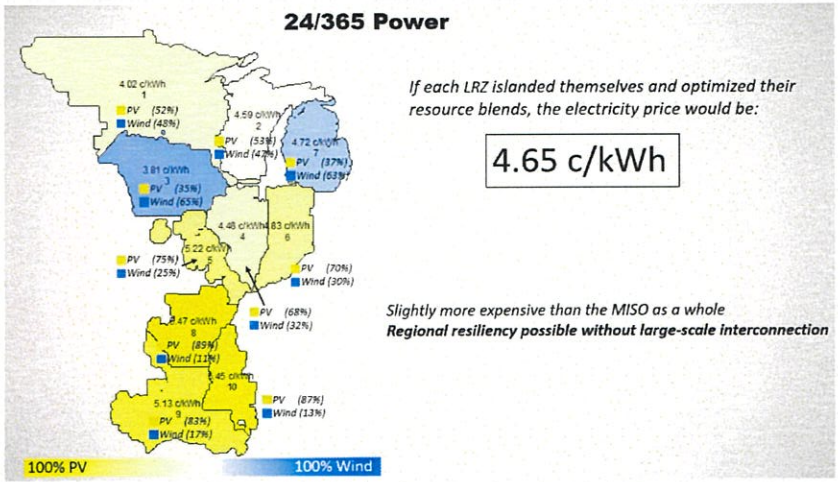
IEA 100% renewable optimization studies –

Finding the lowest cost combination of sources and measures to match load

It's like baking a cake – the recipe must have the right ingredients in the right amounts.

Credit: Dr. Richard Perez, Clean Power Research





If each LRZ islanded themselves and optimized their resource blends, the electricity price would be:

4.65 c/kWh

Slightly more expensive than the MISO as a whole
Regional resiliency possible without large-scale interconnection

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New Jersey's Energy Master Plan
Least Cost Scenario

The EMP found that the Least Cost Scenario relied on in-state solar as the largest single source of clean energy, at 34% of the total.

FIGURE 16.
Supply Sources to Meet New Jersey's 100% Clean Energy Requirement in 2050

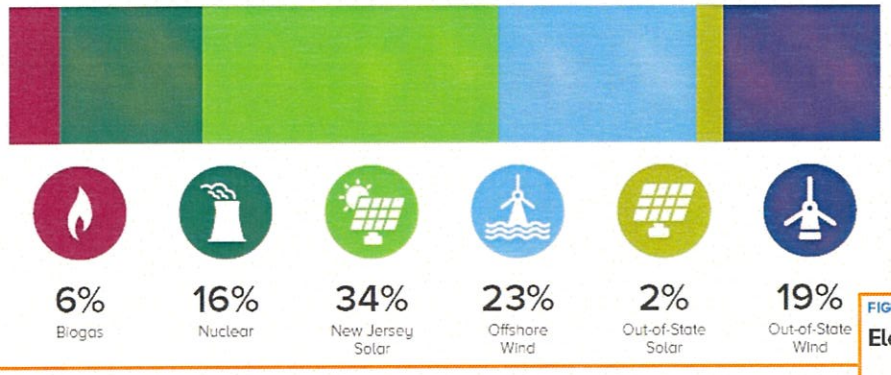
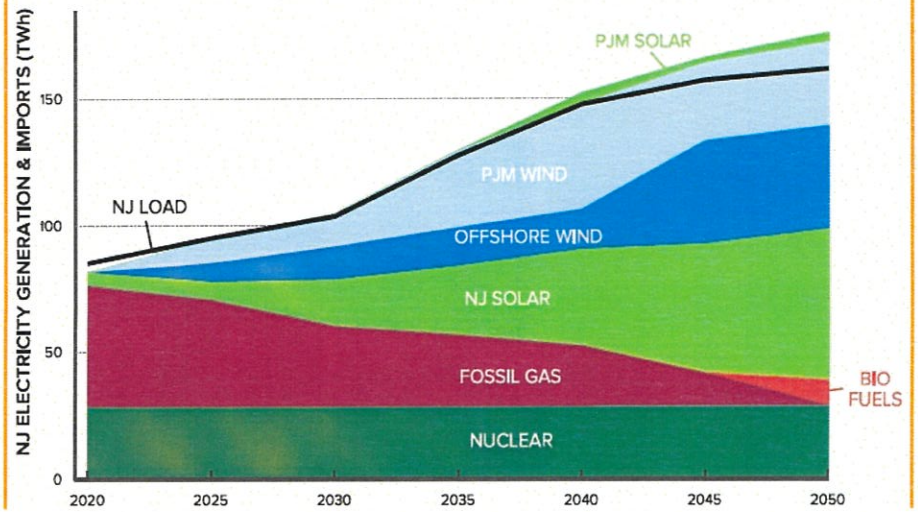


FIGURE 8.
Electricity Generation, Least Cost Scenario



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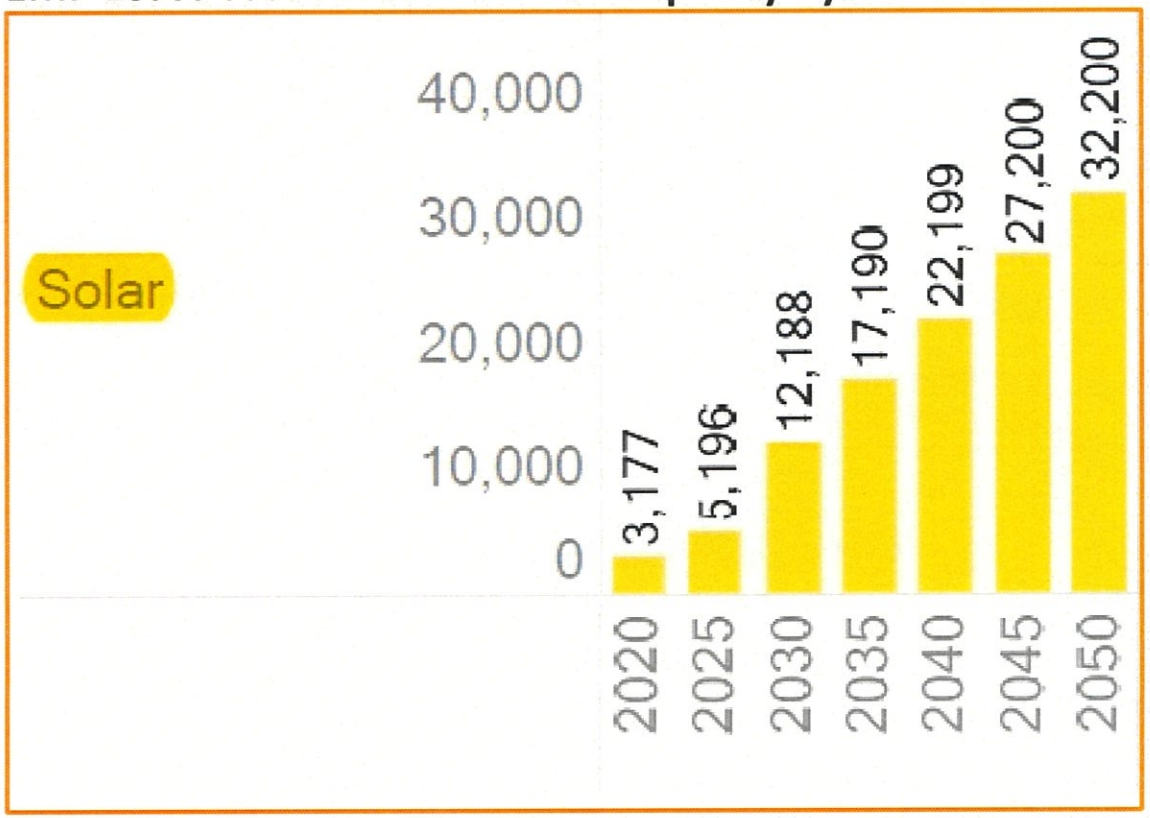
New Jersey's Energy Master Plan
Least Cost Scenario - Solar

The EMP Least Cost Scenario called for 17.2 GW of solar by 2035 and 32.2 GW by 2050.

EMP Least Cost Scenario - Solar Capacity By Year



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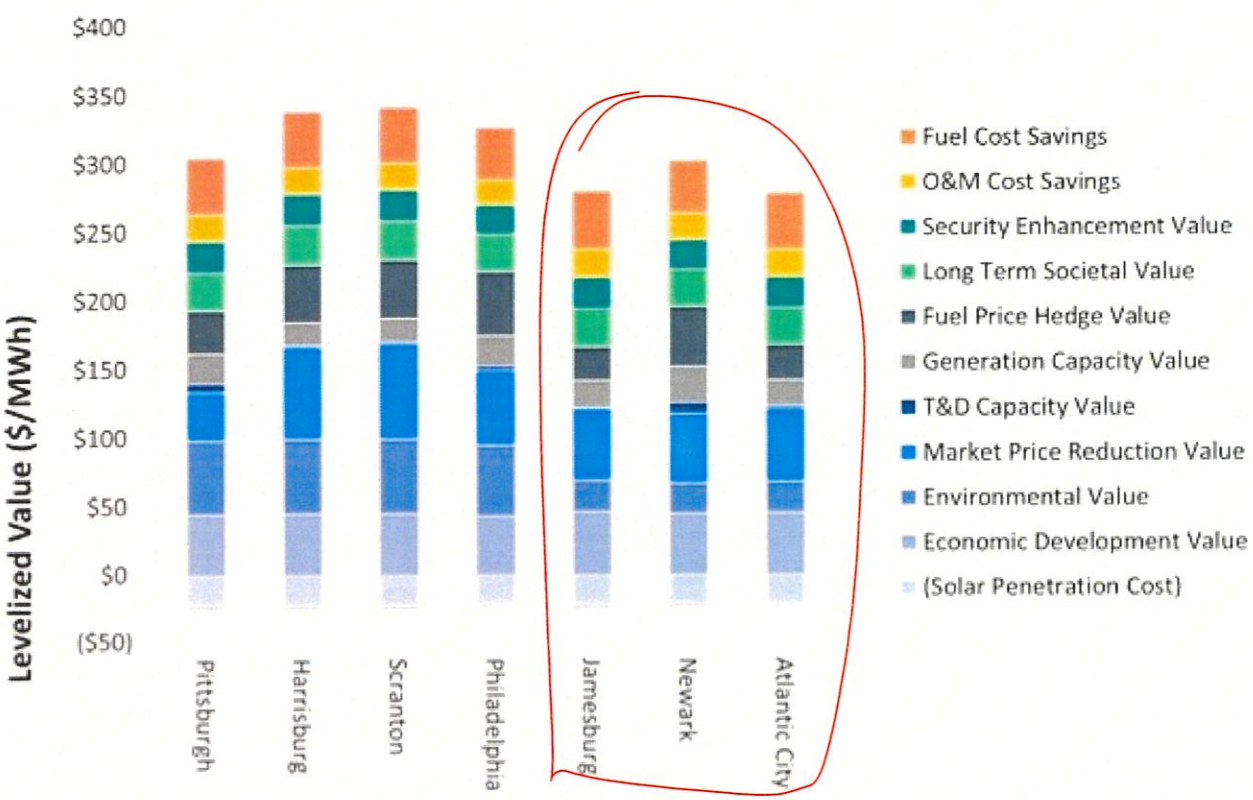
The "Full Value Stack" for Solar – Other NJ Studies

EMP 2.1.6 Develop mechanisms to compensate distributed energy resources for their full value stack (p. 101)

The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania – Clean Power Research, 2012

Figure ES- 1. Levelized value ($/MWh), by location (South-30).



The average value of solar as bundled energy + attributes was $264/MWH in New Jersey (net of costs for grid upgrades).

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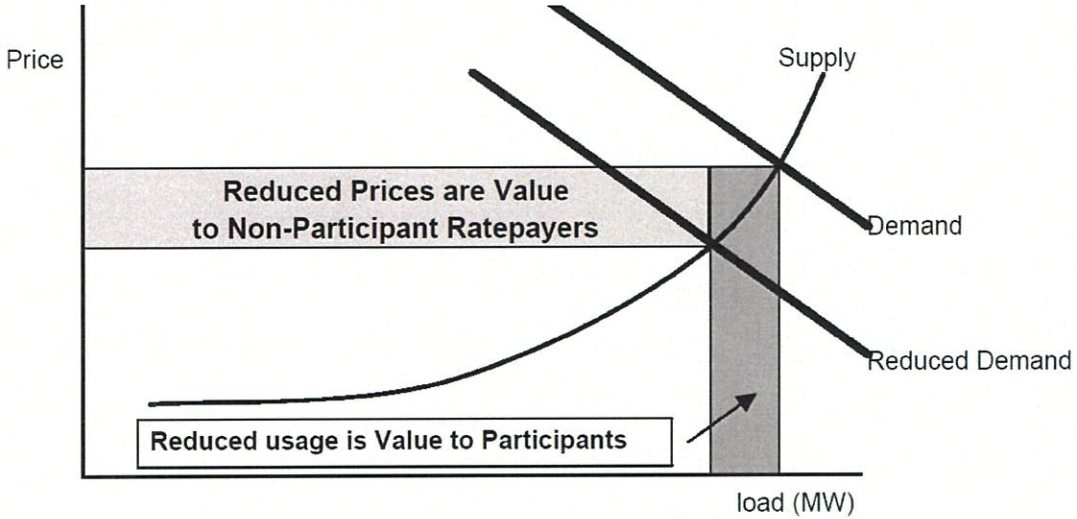
Solar Energy Reduction in Wholesale (LMP) Prices: How it Works

Mid-Atlantic States Cost Curve Analysis (2000)

JBS Energy, Inc.

Figure 1: Market Price and Value of Load Reduction



"As demand rises, particularly in peak periods, the price of energy rises relatively rapidly. If demand can be reduced, for example due to the installation of more efficient appliances, the price will tend to fall as demand falls, benefiting not only the customer whose demand is reduced but all other customers who receive the lower prices of spot market energy. Figure 1 shows the effect graphically for a given hour. The reduction in usagemultiplied by the original market price is a benefit to the customer(s) reducing load. The reduced price multiplied by the usage after the reduction benefits all other loads. The sum of these two shaded blocks is the total value of load reduction. Dividing the sum of the blocks by the MWh of load savings gives a value in $/MWh that is higher than the market price."

"It is clearly in the best interest of society to spend money and send price signals beyond the market price to encourage energy efficiency and load shifting, particularly during the summer peak. ***Distributed photovoltaic generation, with its relatively strong correlation with peak loads, could be particularly important in this regard.***

NOTE: The case study found that the overall annual load reduction value for PV was 268% of the market price.

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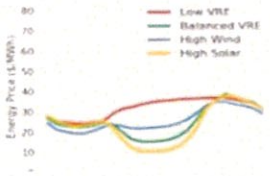
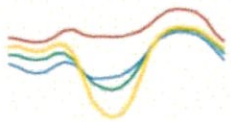
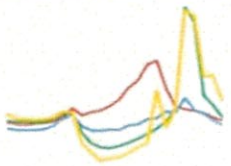
Solar energy reduces wholesale (LMP) prices

Impacts of High Variable Renewable Energy Futures on Wholesale Electricity Prices and on Electric-Sector Decision Making – Lawrence Berkeley National Laboratory

Lending support to a part of the CPR study for New Jersey, it found that **a solar-heavy scenario for 40% to 50% solar & wind by 2030 would lower wholesale prices in NYISO by 39%.**

Wholesale Price Effects of 40-50% Wind & Solar

(Wind: 30% wind & 10+% solar | Balanced: 20% wind & 20% solar | Solar: 30% solar & 10+% wind)

Impacts in 2030 relative to baseline with 2016 wind & solar shares	Southwest Power Pool 2016: 18% wind & 0% solar			NYISO (New York) 2016: 3% wind & 1% solar			CAISO (California) 2016: 7% wind & 14% solar			ERCOT (Texas) 2016: 16% wind & 1% solar		
	Wind	Balanced	Solar	Wind	Balanced	Solar	Wind	Balanced	Solar	Wind	Balanced	Solar
Lower Average Prices [$/MWh]	-19%	-21%	-27%	-37%	-38%	-39%	-25%	-23%	-27%	-25%	-17%	-15%
More Hours <$5/MWh In baseline: 0% of all hours	6%	8%	13%	2%	7%	11%	6%	7%	11%	6%	11%	19%
Changes in Diurnal Price Profile red baseline shows 2016 wind & solar shares												
More Price Variability	1.8x	2.1x	2.5x	2.1x	2.3x	2.5x	3.0x	2.9x	3.4x	1x	4.7x	6.6x
Higher AS Prices Regulation Down	5x	6x	9x	2x	2x	3x	3x	3x	3x	2x	3x	4x
Change in Timing of Top Net-Load Hours	Shift from 4pm to 7pm			Shift from 3pm to 5-7pm			No further shift 7pm			Shift from 3pm to 6-8pm		

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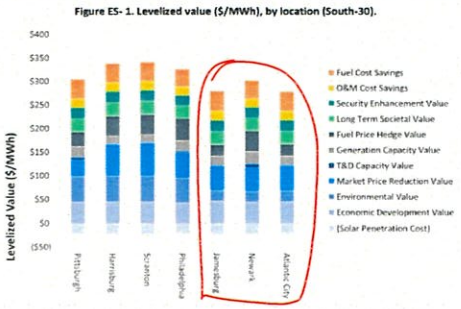
The "Full Value Stack" for Solar – Important Values Yet to be Studied:



1. Forcing down fossil fuel prices by reducing demand

When renewables displace fossil-fueled power, they can force prices down regionally. This can be seen clearly in natural gas prices, which can spike severely during unusual circumstances such as extreme cold weather periods. On the other hand, when demand is low, prices stay low.

2. Resiliency

Solar+storage microgrids at scales from gas stations and hotels to hospitals to giant sewage and water treatment plants can keep essential community services going.

3. "Profit to the People"

All renewable energy projects produce net earnings. But who does those net earnings go to?

- Distributed, in-state solar uniquely provides part or all of those net earnings to households, low-income subscribers, local & state government, schools, non-profits, businesses, etc. The benefits are in cash, and they are spread widely (although not entirely evenly) among the populace.
- MSSIA studied public records for solar projects at 40 schools in NJ. It found that for every $100 in solar incentives paid to the school projects, the schools realize net earnings of $150. The projects provided benefits greater than the cost of incentives, and whole towns benefitted. Already, more than one third of all schools in New Jersey have built solar projects on site. The EMP would bring that to 100% before 2035.
- Up until now, 1/2 to 2/3 of net earnings for nearly all local government, school, and non-profit projects have gone to 3rd party owners of the solar equipment. Now that the IRA allows "direct pay" of the ITC to government and non-profit entities, the net earnings to such entities can double or triple.

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Outlook for In-State Solar: Current Policy Scenario vs. S237 Scenario

- MSSIA made detailed models of the load growth due to EVs and due to Electrification, as well as reductions due to energy efficiency gains per the EMP, concluding that NJ load will grow to 79.6 million MWH by 2035 if the ambitious EV and electrification requirements of NJ Executive Orders, and the EMP energy efficiency goals, are achieved.
- MSSIA then modeled the outcome for the growth of in-state solar, wind, and other in-state Class 1 renewables under current policies. These include Executive Orders for wind and EMP Least-Cost Scenario recommendations for solar.
- In the current policy scenario, 11.6 GW of solar power are built between now and 2035, along with the planned 7.5 GW of offshore wind.
  In this scenario, in-state renewables (wind, solar, and a small amount of other in-state Class 1 renewables) provide 98% of the renewable energy needed to get to 100% by 2035, vs. 2% for out-of-state Class 1 renewables.
  Solar energy would provide 39% of the total renewable energy contribution to load.
- In the S237 scenario, the implications of 100% Class 1 renewables to meet non-nuclear load, with 50% of the Class 1 renewables coming from in-state sources.
  In this scenario, Zero new solar power would be required from today forward, and only 4.5 GW of wind would be required.

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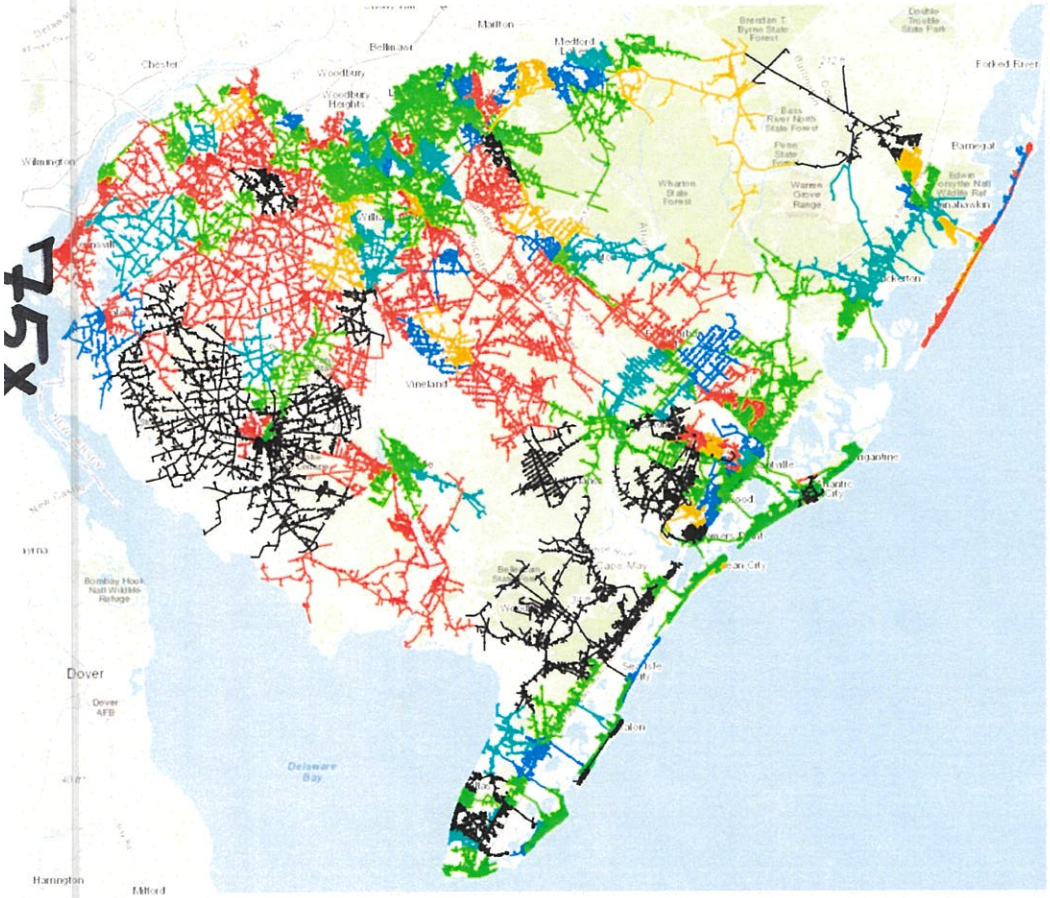
Growth of restricted circuits



- Interconnection and grid modernization remain a big challenge to achievement of the state's renewable goals
- BPU and legislative initiatives for grid modernization are underway, but denials of interconnection are accelerating rapidly. MSSIA believes that a substantial slow-down in solar development is likely before grid modernization efforts catch up.

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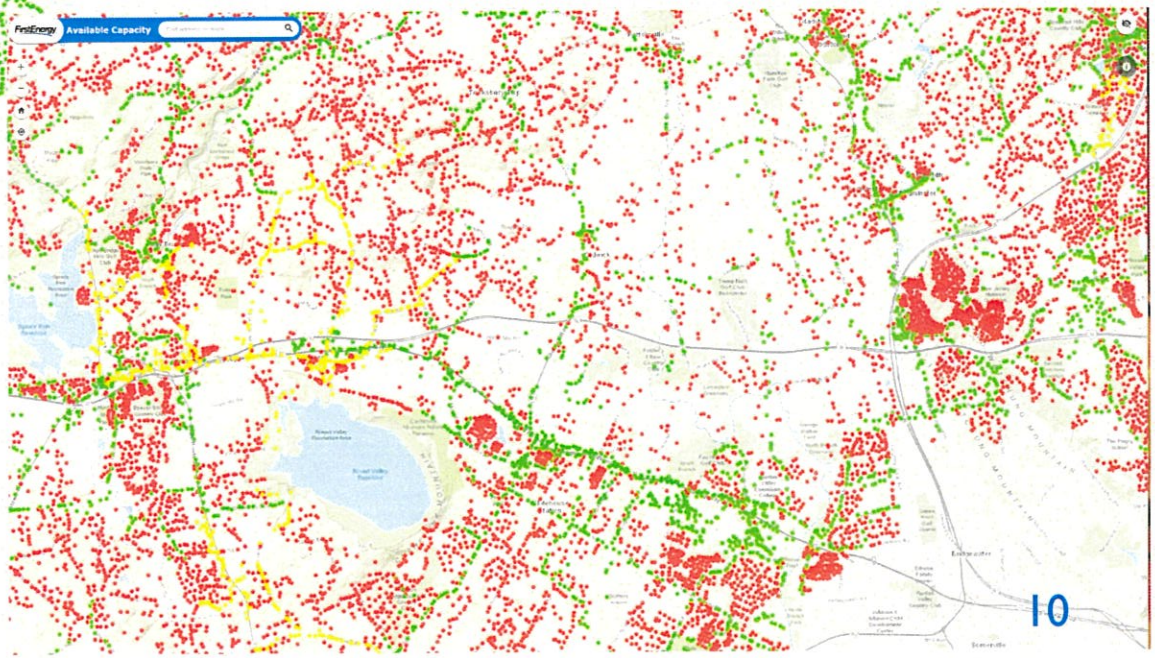
Growth of restricted circuits

Feb. 2020:

Nov. 2023:



COVANTA

Lloyd Naideck
Director, Government Relations
Tel: 862.216.5844
LNaideck@covanta.com

Chairman Smith, Chairman DeAngelo and members of the Senate Environment and Energy and Assembly Telecommunications and Utilities Committees,

Thank you for the opportunity to testify on S237. Covanta is in support of the sponsor's intention but seeking amendments to language in the bill.

Covanta is a leader in sustainable materials management providing environmental solutions to businesses and local communities across New Jersey and North America. Through our network of facilities and state-of-the-art services, Covanta is helping solve today's most complex environmental challenges.

Covanta is also based in New Jersey with our headquarters in Morristown. Between our corporate HQ and our three NJ facilities, Covanta employees nearly 500 individuals in the state. We also are proud to the only corporation to testify on the record in support of the NJ Environmental Justice bill. As a company, we have had EJ policies in place enterprise wide since 2011 and take seriously our role in furthering EJ in the communities we are located in.

Our waste-to-energy (WTE) facilities specifically play a major role in mitigating methane emissions. Methane is a powerful, short-lived climate pollutant, whose concentration has more than doubled since the pre-industrial era. Methane is also 80 times more potent than CO_2 and its climate impact is much larger than previously reported. The Global Methane Assessment, released in May 2021 by the United Nations Environment Programme (UNEP), concluded that "mitigation of methane is very likely the strategy with the greatest potential to decrease warming over the next 20 years." Mitigating methane emissions is one of the strongest levers we have for avoiding the most severe impacts of climate change. In 2021, the Biden Administration and the European Union announced the Global Methane Pledge for a collective effort to reduce global methane emissions at least 30% from 2020 levels by 2030, which could eliminate over 0.2° C warming by 2050.

WTE facilities, and other forms of organics diversion from landfills, prevent all generation of landfill methane, the third largest anthropogenic source of methane. In fact, the largest GHG emissions source in the waste sector is landfill methane. Our strongest tool for reducing methane emissions is diverting organics from landfills through prevention, recycling, anaerobic digestion, composting, and WTE.

Due to its impact on methane mitigation and energy generation, WTE is considered a renewable energy source by the federal government and many states (PA, MD, NY, CT) around the country. It is also included as such in the Biden Administration's Inflation Reduction Act. That is why it has been included in the state's renewable portfolio standard (RPS) since the standard's inception. It continues to be a part of the long-term strategy to have a fully renewable power generation sector.

As it regards S237, we believe the provision on Class II renewable energy credits (RECs) needs to be amended in three key ways.

First, if the goal of the section is to create increased legal protection against the environmental impact that may be generated by renewable facilities, specifically in environmental

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justice (EJ) communities, this provision should apply to all entities receiving RECs (Class I, II, SREC or ZEC RECs).

Second, the term "substantive permit violation" appears to indicate that any permit violation could remove a WTE facility from receiving their Class II credits. This language should be more clearly defined to avoid resulting in punitive action against Class II facilities. While these facilities are in compliance over 99% of the time, the reality is that every permitted Class I or Class II facility in the state of New Jersey will at times have a violation with DEP or other permits. These facilities are highly regulated. For instance, the WTE facility in Essex County has over 600,000 overlapping air compliance periods every year. As drafted, one violation would result in being eliminated from the program for an entire year.

Finally, we believe that disqualifying a facility for an entire energy year is excessively punitive. Instead, if a facility were to be disqualified due to a permit violation, it should be for the period of the violation, not a full year. In making it a full year disqualification, the Legislature would upset the REC marketplace, as RECs are generally sold in advance of the energy year. This would have an unintended consequence of driving up the price of RECs and increasing the cost of the program for rate payers while also having the state's energy providers potentially miss their RPS requirements.

Thank you again for your leadership on this critical issue.

Sincerely,

Lloyd Naideck
Director, Government Relations

COVANTA

Alyssa Wilds
Director, Corporate and Community Relations

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Morristown, NJ 07960
Tel: 856.571.8051
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Chairman Smith, Chairman DeAngelo and members of the Senate Environment and Energy and Assembly Telecommunications and Utilities Committees,

My name is Alyssa Wilds, and I am the Director of Corporate and Community Relations at Covanta. My responsibility is to oversee our community outreach efforts across the country, address long-standing environmental justice concerns, and ensure residents remain informed and heard. And while I joined Team Covanta in September 2021 as the Community Outreach Manager for four sites, including Camden, Union, and Essex, NJ, the work had begun a decade prior.

Our Environmental Justice Policy was created in Chester, Pa alongside residents, stakeholders, and activists, in 2011. The goal of the policy was to recognize our need to engage ALL community stakeholders, address concerns, open regular lines of communication, and become a good neighbor-a valued community partner. The policy came with a community outreach playbook with suggestions on how to engage residents and grassroots organizations; however, it was quickly realized that there was no one-stop approach to doing the work. Each city has its own history, intricacies, and goals to achieve. Treating them as though they were the same could be more harmful than never having engaged them at all.

Over the past two and a half years the Community Relations team has grown. With two specialists dedicated to New Jersey we have been able to expand our efforts with the specific needs of the community in mind. We listened. We had hard conversations. We allowed the residents to design the community outreach plan for their city. We met with stakeholders. We regrouped and revised our plans as often as necessary.

In 2023, after a full revision of the Community Outreach Playbook and setting Key Performance Indicators, 1400+ volunteer hours were logged, and 4000 families/seniors/displaced individuals fed in the State of New Jersey. Vacant lots were turned into pollinator gardens. Elementary students were taught to recycle. Middle school students worked alongside facility staff to create small urban farms. High schoolers were offered internships to explore career paths that did not require a college degree. Second Chance hiring was introduced. Local hiring increased. Weekly community clean-ups were completed with city leaders and other corporate partners. Neighborhood service projects were accomplished to assist in raising the city's Sustainable Jersey certification. Collaborations with workforce development organizations were established to create stronger employee pipelines. Covanta-lead monthly gatherings were held to keep the lines of communication open and transparency at the forefront. Town hall meetings were hosted throughout our host cities as requested. School

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and sports sponsorships were offered to grant students the same experiences as their suburban counterparts. Facility tours rose drastically. College and high school students from around the

state, elected officials, mentoring organizations, seniors, inquisitive residents, and activists were all hosted. Several nonprofits were able to expand their programming due to funds received from our Community Benefits Agreement. The list goes on and the work continues into the new year.

Covanta recognizes the importance of the work being done and the need to do more. Not only has the Community Relations team expanded to ensure the work does not end and there are no gaps in service, but our outreach efforts are now a company-wide priority. We have also begun working jointly with other industries in our host cities to provide greater services to residents.

I am the product of a Covanta community and devoted to this work. Overburden, underserved cities like my hometown of Camden, NJ are used to being disregarded. We have been promised much with extraordinarily little delivered. We are used to decisions being made without our knowledge or input. Covanta has changed that narrative. We initiate the conversation and keep all partners informed. We guarantee promises are upheld and delivered on time. We speak the languages of the community. We offer information at multiple levels of understanding. We are always available to answer questions and listen to concerns.

We are open, accessible, and consistently doing our best to be a good neighbor and valued community partner.

Thank you for your leadership and the opportunity to testify on S237.

Sincerely,

Alyssa Wilds

Director, Corporate and Community Relations

80X

NJUA
NEW JERSEY UTILITIES ASSOCIATION

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609-392-1000 • Fax 609-396-4231 • www.njua.com

March 11, 2024

RE: Senate Bill 258

Dear Chairman Smith, Chairman DeAngelo and Members of the Senate Environment and Energy Committee and the Assembly Telecommunications and Utilities Committee:

Grid modernization is one of the most important issues facing New Jersey today and is critical for the achievement of the State's ambitious climate goals. New Jersey's electric distribution companies (EDCs) readily acknowledge that significant work needs to be done to upgrade the State's electrical grid to prepare for increased deployment of renewables and other distributed energy resources (DERs), including electric vehicle infrastructure. However, grid modernization is a complex, multifaceted issue that affects utility companies and customers alike. It is important that policymakers carefully consider how legislation and existing regulatory efforts would interact so that progress toward achieving grid modernization can proceed without interruption.

Therefore, on behalf of the New Jersey Utilities Association (NJUA), the statewide trade association for New Jersey's investor-owned utilities that provide essential water, wastewater, electric, natural gas, and telecommunications services throughout the state, I write to offer our comments on behalf of NJUA's EDC members regarding Senate Bill 258, which would require each electric public utility in the State to develop and implement a plan to modernize the electric transmission and distribution system within its territory. In summary, NJUA provides the following considerations:

- New Jersey's EDCs strongly support the goals of grid modernization, including updating interconnection processes, increasing DER hosting capacity, and proactively planning for infrastructure upgrades;
- EDCs are already making progress modernizing the grid under BPU's existing frameworks;
- Continued coordination between utilities, BPU, and our regional transmission operator, PJM, is necessary to achieve the goals of grid modernization while maintaining consistent, affordable, and resilient electrical service; and
- Technical, tariff, and operational questions are best addressed through long-term planning and the BPU stakeholder process so that a strong regulatory framework can be defined.

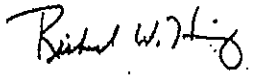
NJUA's EDC members strongly support the goal of modernizing the State's electrical grid. Streamlining interconnection standards, increasing DER hosting capacity, and proactively planning infrastructure upgrades are necessary steps towards decarbonizing the State's electricity sector while simultaneously increasing reliability and resilience against severe weather events. This is why NJUA's EDC members are already working to make this happen. Right now, New Jersey's EDCs are rolling out advanced metering infrastructure, advancing interconnection, and developing and implementing Infrastructure Improvement Plans (IIPs).

EDCs are also actively participating in the New Jersey Board of Public Utilities' (BPU) Grid Modernization stakeholder process, which is focused on developing a statewide grid modernization framework in accordance with the 2019 New Jersey Energy Master Plan (EMP). As part of this proceeding, the BPU published a 2022 Grid Modernization Report and has subsequently held a series of public meetings to collect stakeholder input on draft rules implementing the report's recommendations. NJUA's EDC members have been active participants in these stakeholder meetings and intend to continue working with the BPU to help guide the development of grid modernization rules and regulations.

NJUA's EDC members are ready to address the technical, tariff, and operational questions the grid modernization raises, but are focused first and foremost on maintaining the reliability, affordability, sustainability, and security of electrical service for New Jerseyans. NJUA finds that this balance is struck best if planning for grid modernization remains through stakeholder processes under the purview of the BPU and in coordination with PJM. A collaborative stakeholder approach involving state and regional regulators in tandem with the regulated community is the best way to approach grid modernization so that EDCs can provide consumers with the highest quality service and avoid service disruptions while upgrading for a clean energy future.

We appreciate the opportunity to provide comments and look forward to continuing our work to modernize the electric grid.

Very truly yours,



Richard Henning
President & CEO
New Jersey Utilities Association
rhenning@njua.com

1 Tesla Road, Austin, TX 78725
www.tesla.com/contact

Memorandum

TO: **Members, Senate Environment and Energy Committee**
Members, Assembly Telecommunications and Utilities Committee

FROM: **Zach Kahn, Senior Policy Manager, East Region, Business Development and Public Policy**
Tesla, Inc.

RE: **PLEASE SUPPORT S-258 With Amendments (Smith) - Requires electric public utilities to develop and implement grid modernization plans; appropriates $300 million.**

DATE: **March 11, 2024**

On behalf of Tesla, I write to express our support for S-258 and the amendments offered by the Environmental Defense Fund and Natural Resources Defense Council. Achieving New Jersey's ambitious goals for transportation electrification will require more proactive investments in grid readiness. As of today, there are still numerous challenges that hinder the deployment of electric vehicle (EV) charging infrastructure in New Jersey, including expanding grid capacity to serve transportation electrification load. S-258 and the accompanying amendments will provide utilities in New Jersey with the necessary tools to anticipate and meet the needs of increasing EV adoption in the state.

Tesla's mission is to accelerate the world's transition to sustainable energy through the development and deployment of electric vehicles and clean energy products. As both a manufacturer of EVs and a provider of charging infrastructure, Tesla is keenly aware of the bottlenecks that delay charging projects from moving forward. This issue will only be exacerbated as load growth from EV adoption reveals deficiencies in grid readiness in New Jersey. Tesla is particularly supportive of the proposed amendments to S-258 because they present a proactive approach to grid infrastructure.

The traditional 'just-in-time' approach to grid planning results in bottlenecks to charger deployment that could impede EV adoption. It is increasingly common for the development and energization of charging stations to be delayed due to a lack of critical distribution infrastructure buildout. Transportation electrification load is unique in that charging providers can construct a site in a matter of weeks, compared to the longer timeline of traditional commercial customers that takes over one year. This unusually quick construction timeline for the size of load makes proactive grid investments especially important to align construction timelines with interconnection timelines.

The proposed redlines would also ensure that policy goals are incorporated into investment decisions and capacity planning. By directing utilities to update infrastructure deployment procedures to meet transportation electrification needs, the grid will be more prepared to keep pace with the rapid deployment of charging infrastructure that is expected in the coming years. The amendments would also embolden utilities to confidently make proactive investments in transmission and distribution infrastructure. This is an important step in preventing insufficient forecasts from becoming a limiting factor on infrastructure deployment. Tesla strongly supports these redlines and is confident that they will lead to meaningful outcomes for transportation electrification in New Jersey.

Grid readiness is a critical factor in achieving the state's ambitious climate, EV, and EV charging deployment goals. We sincerely appreciate Senator Smith's efforts to support future charging station deployment through S-258. The bill with amendments will go a long way to accelerate transportation electrification in New Jersey.

On behalf of Tesla Inc., we urge your support for S-258 with amendments.

Thank you.

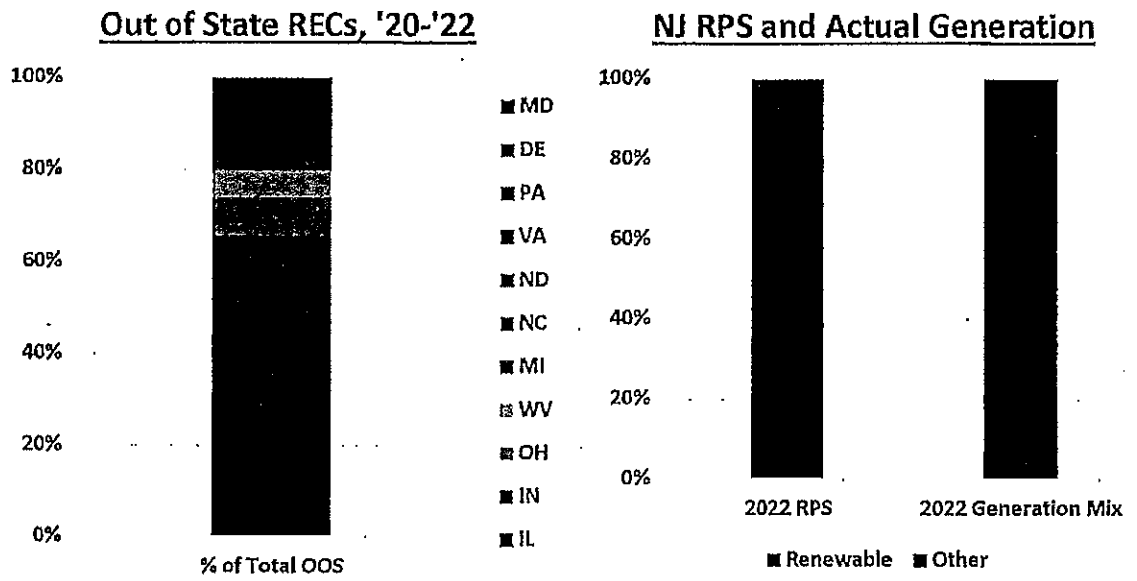
Comments from Ad Energy on proposed bill S237 / A1480 delivered to a joint session of the Senate Environment and Energy Committee and the Assembly Telecommunications and Utilities Committee on 3/11/2024

I wish to comment on one particular and crucial issue regarding the proposed legislation that has up to now received less attention than we feel it deserves, that of transmission costs. These comments are delivered in person to the joint session. Further, more holistic written comments on other aspects of proposed bill S237 / A1480 will be provided at a later date.

Ad Energy is a New Jersey based residential and commercial solar installation company.

The REC system and its recent results

- Generators are allowed to satisfy a Class I clean energy requirement by procuring RECs
- New Jersey fossil fuel generator can comply with a clean energy requirement by procuring a REC from another clean energy facility
- The majority of New Jersey's clean energy requirement has been met with a combination of local fossil fuel generation and RECs from Midwest wind facilities
- While a REC from the Midwest can travel to New Jersey cost free, electricity cannot



Transmission cost part II – the potential unfunded transmission costs are large

- The REC mechanism makes no differentiation between local and distant generation, and makes no provision for transmission infrastructure investment necessary to bring distant generation to New Jersey
- If we assume that recent geographic patterns of clean generation development continue, we can estimate the cost of this unfunded but required investment
- We estimate a transmission cost of approximately ***$38 billion***
- This cost is entirely unfunded by the current version of S237 / A1480
- Business as usual PJM practices would ultimately ask New Jersey ratepayers to fund that investment

	GW	Miles	Cost per GW-mile**	Cost to Build
EMP Exisitng Transmission Capacity*	7.0	400	3,500,000	$ 9,800,000,000
EMP Additional Capacity to Accommodate 20% Imports*	2.0			
Implied Total Capacity for 35% Imports	15.8			
Additional Capacity for 35% Imports	8.8	800	3,500,000	$24,500,000,000
Estimated Transmission Cost				$34,300,000,000
Increase due to Line Losses				10%
Total Estimated Transmission Cost				$37,730,000,000

* See NJ Energy Master Plan page 55, Section 5; assumes 50% of full cost needed to upgrade transmission from PA to midwest
**Derived from MISO MTEP-21 program of transmission expansion, a $10bln collection of 18 transmission projects

Advanced Energy United Proposed Redlines to S.258

What is highlighted in red are United's proposed amendments. Proposed additions are underlined and bill text we are suggesting should be deleted is placed in [square brackets].

Sponsored by:
Senator BOB SMITH
District 17 (Middlesex and Somerset)

SYNOPSIS

Requires electric public utilities to develop and implement distribution grid modernization plans; appropriates $300 million.

CURRENT VERSION OF TEXT

As introduced.

AN ACT concerning the electric [transmission and] distribution system, supplementing Title 48 of the Revised Statues, amending P.L.1999, c.23 and P.L.2007, c.340, and making an appropriation.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

1. (New section) As used in sections 1 through 4 of P.L. , c. (C.) (pending before the Legislature as this bill):

"Board" means the Board of Public Utilities.

"Distributed energy resource" means small-scale power generation, load management or storage technology, including, but not limited to, resources that are in front of or behind the customer meter, electric storage resources, distributed generation such as solar and wind power, demand response, energy efficiency, thermal storage, and electric vehicles and their supply equipment that are located on an electric public utility's distribution system or on a subsystem of the utility's distribution system. [an electricity-producing resource or controllable load that is connected to an electric public utility's distribution infrastructure.]

"Distribution system" means, with respect to an electric public utility, any facility or equipment that is used for the distribution or delivery of electricity to the customers of the electric public utility including, but not limited to, the land, structures, meters, lines, switches and all other appurtenances thereof and thereto, owned or controlled by the electric public utility within this State and not subject to PJM approval.

"Electric public utility" means a public utility, as defined in R.S.48:2-13, that transmits or distributes electricity to end users within the State. [the same as the term is defined in section 3 of P.L.1999, c.23 (C.48:3-51).]

"Grid Modernization Plan," or "plan," means the plan prepared by each electric public utility pursuant to section 2 of P.L. , c. (C.) (pending before the Legislature as this bill), and implemented pursuant to section 3 of P.L. , c. (C.) (pending before the Legislature as this bill).

["Transmission and distribution system" means the same as the term is defined in section 3 of P.L.1999, c.23 (C.48:3-51).]

2. (New section) a. No later than one year after the effective date of this act, each electric public utility in the State shall prepare and submit to the board a Grid Modernization Plan. The purpose of the plan shall be to identify the most beneficial, cost-efficient, and practicable projects, to be undertaken by the electric public utility pursuant to section 3 of P.L. , c. (C.) (pending before the Legislature as this bill), to modernize the State's electric [transmission and] distribution system within the utility's service area.

b. A plan shall describe in detail projects and activities that shall [may include, but shall not be limited to, projects that]:

(1) improve the integration[e] of energy storage systems and distributed energy resources into the electric [transmission or] distribution system;

(2) increase the [capacity] capability of the electric distribution system to interconnect distributed energy resources in a timely and efficient manner;

(3) prepare the electric [transmission and] distribution system to deliver power in accordance with the State's greenhouse gas emissions goals;

(4) decrease the risk of power outages, particularly outages caused by storms or other adverse weather events;

(5) improve the resilience of the electric [transmission and] distribution system against natural hazards associated with climate change, including increased temperatures and flood risk; and

[(6) otherwise improve the ability of the electric public utility to provide uninterrupted electric power to customers, given the foreseeable changes in physical and market conditions.]

(6) improve distribution system performance and enhance demand flexibility in a manner that benefits distribution system operations;

(7) create a data-rich environment that facilitates customer and third-party adoption of distributed energy resources and makes use of competitively sourced solutions for meeting grid needs;

(8) accommodate and promote transportation and building electrification for decarbonization; and

(9) minimize or mitigate impacts on ratepayers by considering both traditional and innovative solutions to meeting grid needs.

c. A plan shall include a cost estimate for each project included in the plan and an appropriate timeline for the plan's implementation.

d. No later than 240 [120] days after receipt of a Grid Modernization Plan, the board shall approve, conditionally approve, or disapprove the plan and provide written notice of the determination to the electric public utility. The board shall assess a plan on the basis of its ability to achieve the objectives enumerated in subsections a. and b. of this section, in addition to the plan's feasibility, cost effectiveness, and expected ratepayer impact considering all available revenue streams. [If the board does not provide written notice of the determination made pursuant to this subsection, the plan shall be deemed to have been approved, and the electric public utility shall proceed to implement the plan as provided by paragraph (1) of subsection e. of this section.]

e. (1) If a Grid Modernization Plan is approved, the electric public utility shall implement the approved plan within 90 days after receipt of the board's written notice. [or after the expiration of the 120-day period established by subsection d. of this section, as the case may be, or within another timeframe agreed to by the board.]

(2) If a plan is conditionally approved, the board's written notice shall specify the conditions that are to be satisfied in order for the plan to be deemed approved pursuant to this section. The electric public utility shall implement the conditionally approved plan, in accordance with the conditions specified in the notice, either within 90 days after receipt of the board's notice or within another timeframe agreed to by the board.

(3) If a plan is disapproved, the board's written notice shall be accompanied by a detailed statement describing the reasons for disapproval. Not more than 30 days after receipt of the board's notice, the electric public utility shall submit a revised Grid Modernization Plan to the board, and the board shall approve, conditionally approve, or disapprove the revised plan in accordance with the provisions of this section.

(4) Plans shall be updated every three years.

3. (New section) a. No later than 90 days after a Grid Modernization Plan receives approval, or within another timeframe agreed to by the board pursuant to section 2 of P.L. , c. (C.) (pending before the Legislature as this bill), the electric public utility shall commence implementing the plan. The plan shall be fully implemented within the timeframe specified in the plan pursuant to subsection c. of section 2 of P.L. , c. (C.) (pending before the Legislature as this bill). In the event that an electric public utility is unable to fully implement its plan, it shall provide written notice to this effect to the board.

b. Subject to review by the board, an electric public utility shall be entitled to full and timely cost recovery for all costs incurred in the implementation of its plan.

4. (New section) a. No later than one year after the effective date of this act, the board shall develop a program to provide grants to electric public utilities for the purpose of providing financial relief to ratepayers for rate increases caused by the implementation of a Grid Modernization Plan.

b. The board shall develop priority ranking criteria for the award of grants under the program. The priority ranking criteria shall provide additional priority for a project that receives funding pursuant to the federal "Infrastructure Investment and Jobs Act," Pub.L. 117-58, or the federal "Inflation Reduction Act," Pub.L. 117-169.

c. There is established in the Board of Public Utilities a special, nonlapsing fund to be known as the Grid Modernization Ratepayer Relief Fund. Moneys in the fund shall be used by the board solely for the purpose of administering the grant program developed pursuant to this section. The fund shall be administered by the board and shall be credited with:

(1) moneys that are appropriated into the fund by the Legislature;

(2) moneys received from the societal benefits charge established pursuant to section 12 of P.L.1999, c.23 (C.48:3-60), as deemed appropriate by the board;

(3) moneys made available to the board pursuant to the implementation of the Regional Greenhouse Gas Initiative and P.L.2007, c.340 (C.26:2C-45 et seq.); and

(4) any return on investment of moneys deposited in the fund.

d. The fund shall be used to reduce the rate impacts of approved grid modernization investments and expenses in a manner that does not place moneys from the fund, directly or indirectly, into the electric public utility's rate base or in other ways increase utility profits.

5. Section 12 of P.L.1999, c.23 (C.48:3-60) is amended to read as follows:

12. a. Simultaneously with the starting date for the implementation of retail choice as determined by the board pursuant to subsection a. of section 5 of P.L.1999, c.23 (C.48:3-53), the board shall permit each electric public utility and gas public utility to recover some or all of the following costs through a societal benefits charge that shall be collected as a non-bypassable charge imposed on all electric public utility customers and gas public utility customers, as appropriate:

(1) The costs for the social programs for which rate recovery was approved by the board prior to April 30, 1997. For the purpose of establishing initial unbundled rates pursuant to section 4 of P.L.1999, c.23 (C.48:3-52), the societal benefits charge shall be set to recover the same level of social program costs as is being collected in the bundled rates of the electric public utility on the effective date of P.L.1999, c.23 (C.48:3-49 et al.). The board may subsequently order, pursuant to its rules and regulations, an increase or decrease in the societal benefits charge to reflect changes

in the costs to the utility of administering existing social programs. Nothing in P.L.1999, c.23 (C.48:3-49 et al.) shall be construed to abolish or change any social program required by statute or board order or rule or regulation to be provided by an electric public utility. Any such social program shall continue to be provided by the utility until otherwise provided by law, unless the board determines that it is no longer appropriate for the electric public utility to provide the program, or the board chooses to modify the program;

(2) Nuclear plant decommissioning costs;

(3) The costs of demand side management programs that were approved by the board pursuant to its demand side management regulations prior to April 30, 1997. For the purpose of establishing initial unbundled rates pursuant to section 4 of P.L.1999, c.23 (C.48:3-52), the societal benefits charge shall be set to recover the same level of demand side management program costs as is being collected in the bundled rates of the electric public utility on the effective date of P.L.1999, c.23 (C.48:3-49 et al.). Within four months of the effective date of P.L.1999, c.23 (C.48:3-49 et al.), and every four years thereafter, the board shall initiate a proceeding and cause to be undertaken a comprehensive resource analysis of energy programs, and within eight months of initiating such proceeding and after notice, provision of the opportunity for public comment, and public hearing, the board, in consultation with the Department of Environmental Protection, shall determine the appropriate level of funding for energy efficiency, light, medium, and heavy-duty plug-in electric vehicles, including school buses, and associated plug-in electric vehicle charging infrastructure, [and] Class I renewable energy programs that provide environmental benefits above and beyond those provided by standard offer or similar programs in effect as of the effective date of P.L.1999, c.23 (C.48:3-49 et al.); [provided that the] and ratepayer relief grants issued pursuant to section 4 of P.L. , c. (C.) (pending before the Legislature as this bill). The funding for such programs shall be no less than 50 percent of the total Statewide amount being collected in electric and gas public utility rates for demand side management programs on the effective date of P.L.1999, c.23 (C.48:3-49 et al.) for an initial period of four years from the issuance of the first comprehensive resource analysis following the effective date of P.L.1999, c.23 (C.48:3-49 et al.), and [provided that] 25 percent of this amount shall be used to provide funding for Class I renewable energy projects in the State. In each of the following fifth through eighth years, the Statewide funding for such programs shall be no less than 50 percent of the total Statewide amount being collected in electric and gas public utility rates for demand side management programs on the effective date of P.L.1999, c.23 (C.48:3-49 et al.), except that as additional funds are made available as a result of the expiration of past standard offer or similar commitments, the minimum amount of funding for such programs shall increase by an additional amount equal to 50 percent of the additional funds made available, until the minimum amount of funding dedicated to such programs reaches $140,000,000 total. After the eighth year, the board shall make a determination

as to the appropriate level of funding for these programs. Such programs shall include a program to provide financial incentives for the installation of Class I renewable energy projects in the State, and the board, in consultation with the Department of Environmental Protection, shall determine the level and total amount of such incentives as well as the renewable technologies eligible for such incentives which shall include, at a minimum, photovoltaic, wind, and fuel cells. The board shall simultaneously determine, as a result of the comprehensive resource analysis, the programs to be funded by the societal benefits charge, the level of cost recovery and performance incentives for old and new programs and whether the recovery of demand side management programs' costs currently approved by the board may be reduced or extended over a longer period of time. The board shall make these determinations taking into consideration existing market barriers and environmental benefits, with the objective of transforming markets, capturing lost opportunities, making energy services more affordable for low income customers and eliminating subsidies for programs that can be delivered in the marketplace without electric public utility and gas public utility customer funding;

(4) Manufactured gas plant remediation costs, which shall be determined initially in a manner consistent with mechanisms in the remediation adjustment clauses for the electric public utility and gas public utility adopted by the board; and

(5) The cost[,] of consumer education, as determined by the board, which shall be in an amount that, together with the consumer education surcharge imposed on electric power supplier license fees pursuant to subsection h. of section 29 of P.L.1999, c.23

(C.48:3-78) and the consumer education surcharge imposed on gas supplier license fees pursuant to subsection g. of section 30 of P.L.1999, c.23 (C.48:3-79), shall be sufficient to fund the consumer education program established pursuant to section 36 of P.L.1999, c.23 (C.48:3-85).

b. There is established in the Board of Public Utilities a nonlapsing fund to be known as the "Universal Service Fund." The board shall determine: the level of funding and the appropriate administration of the fund; the purposes and programs to be funded with monies from the fund; which social programs shall be provided by an electric public utility as part of the provision of its regulated services which provide a public benefit; whether the funds appropriated to fund the "Lifeline Credit Program" established pursuant to P.L.1979, c.197 (C.48:2-29.15 et seq.), the "Tenants' Lifeline Assistance Program" established pursuant to P.L.1981, c.210 (C.48:2-29.30 et seq.), the funds received pursuant to the Low Income Home Energy Assistance Program established pursuant to 42 U.S.C. s.8621 et seq., and funds collected by electric and gas public

utilities, as authorized by the board, to offset uncollectible electricity and natural gas bills should be deposited in the fund; and whether new charges should be imposed to fund new or expanded social programs.
(cf: P.L.2022, c.86, s.2)

6. Section 7 of P.L.2007, c.340 (C.26:2C-51) is amended to read as follows:

7. a. The agencies administering programs established pursuant to this section shall maximize coordination in the administration of the programs to avoid overlap between the uses of the fund prescribed in this section.

b. Moneys in the fund, after appropriation annually for payment of administrative costs authorized pursuant to subsection c. of this section, shall be annually appropriated and used for the following purposes:

(1) Sixty percent shall be allocated to the New Jersey Economic Development Authority to provide grants and other forms of financial assistance to commercial, institutional, and industrial entities to support end-use energy efficiency projects and new, efficient electric generation facilities that are state of the art, as determined by the department, including but not limited to energy efficiency and renewable energy applications, to develop combined heat and power production and other high efficiency electric generation facilities, to stimulate or reward investment in the development of innovative carbon emissions abatement technologies with significant carbon emissions reduction or avoidance potential, to develop qualified offshore wind projects pursuant to section 3 of P.L.2010, c.57 (C.48:3-87.1), and to provide financial assistance to manufacturers of equipment associated with qualified offshore wind projects. The authority, in consultation with the board and the department, shall determine: (a) the appropriate level of grants or other forms of financial assistance to be awarded to individual commercial, institutional, and industrial sectors and to individual projects within each of these sectors; (b) the evaluation criteria for selecting projects to be awarded grants or other forms of financial assistance, which criteria shall include the ability of the project to result in a measurable reduction of the emission of greenhouse gases or a measurable reduction in energy demand, provided, however, that neither the development of a new combined heat and power production facility, nor an increase in the electrical and thermal output of an existing combined heat and power production facility, shall be subject to the requirement to demonstrate such a measurable reduction; and (c) the process by which grants or other forms of financial assistance can be applied for and awarded including, if applicable, the payment terms and conditions for authority investments in certain projects with commercial viability;

(2) Twenty percent shall be allocated to the board: to support programs that are designed to reduce electricity demand or costs to electricity customers in the low-income and moderate-income

residential sector with a focus on urban areas, including efforts to address heat island effect and reduce impacts on ratepayers attributable to the implementation of P.L.2007, c.340 (C.26:2C-45 et al.) [or] ; to support the light duty plug-in electric vehicle incentive program and the incentive program for in-home electric vehicle service equipment established pursuant to sections 4 and 6 of P.L.2019, c.362 (C.48:25-4 and C.48:25-6); or to provide ratepayer relief grants pursuant to section 4 of P.L. , c. (C.) (pending before the Legislature as this bill) . For the purposes of this paragraph, the board, in consultation with the authority and the department, shall determine the types of programs to be supported and the mechanism by which to quantify benefits to ensure that the supported programs result in: a measurable reduction in energy demand [or] ; accomplishment of the plug-in electric vehicle goals established pursuant to section 3 of P.L.2019, c.362 (C.48:25-3); or effective subsidization of grid modernization projects pursuant to P.L. , c. (C.) (pending before the Legislature as this bill);

(3) Ten percent shall be allocated to the department to support programs designed to promote local government efforts to plan, develop and implement measures to reduce greenhouse gas emissions, including but not limited to technical assistance to local governments, and the awarding of grants and other forms of assistance to local governments to conduct and implement energy efficiency, renewable energy, and distributed energy programs and land use planning where the grant or assistance results in a measurable reduction of the emission of greenhouse gases or a measurable reduction in energy demand. For the purpose of conducting any program pursuant to this paragraph, the department, in consultation with the authority and the board, shall determine: (a) the appropriate level of grants or other forms of financial assistance to be awarded to local governments; (b) the evaluation criteria for selecting projects to be awarded grants or other forms of financial assistance; (c) the process by which grants or other forms of financial assistance can be applied for and awarded; and (d) a mechanism by which to quantify benefits; and

(4) Ten percent shall be allocated to the department to support programs that enhance the stewardship and restoration of the State's forests and tidal marshes that provide important opportunities to sequester or reduce greenhouse gases.

c. (1) The department may use up to four percent of the total amount in the fund each year to pay for administrative costs justifiable and approved in the annual budget process, incurred by the department in administering the provisions of P.L.2007, c.340 (C.26:2C-45 et al.) and in administering programs to reduce the emissions of greenhouse gases including any obligations that may arise under subsection a. of section 11 of P.L.2007, c.340

(C.26:2C-55).

(2) The board may use up to two percent of the total amount in the fund each year to pay for administrative costs justifiable and approved in the annual budget process, incurred by the board in administering the provisions of P.L.2007, c.340 (C.26:2C-45 et al.) and in administering programs to reduce the emissions of greenhouse gases including any obligations that may arise under subsection a. of section 11 of P.L.2007, c.340 (C.26:2C-55).

(3) The New Jersey Economic Development Authority may use up to two percent of the total amount in the fund each year to pay for administrative costs justifiable and approved in the annual budget process, incurred by the authority in administering the provisions of P.L.2007, c.340 (C.26:2C-45 et al.) and in administering programs to reduce the emissions of greenhouse gases.

d. The State Comptroller shall conduct or supervise independent audit and fiscal oversight functions of the fund and its uses.

(cf: P.L.2019, c.362, s.12)

7. There is appropriated from the General Fund to the Grid Modernization Ratepayer Relief fund established pursuant to subsection c. of section 4 of P.L. , c. (C.) (pending before the Legislature as this bill) the sum of $300 million to develop and implement the grant program established by the Board of Public Utilities pursuant to section 4 of P.L. , c. (C.) (pending before the Legislature as this bill).

8. This act shall take effect immediately.

STATEMENT

This bill would require each electric public utility in the State to develop and implement a plan to modernize the electric transmission and distribution system within its territory. The bill would also appropriate $300 million to the Board of Public Utilities (BPU) to provide grants to electric public utilities, which would be used to offset electricity rate increases that are caused by the implementation of the plan.

The bill would require each Grid Modernization Plan (plan) to be submitted to the BPU no later than one year after the bill's effective date. The bill would provide that the plan may include projects related to energy storage, the interconnection of distributed energy sources (e.g. rooftop solar facilities), and the ability to deliver clean energy pursuant to the State's greenhouse gas emissions goals, as well as other items. The bill would require each plan to include a timeline for its implementation.

No later than 90 days after an electric public utility receives the BPU's approval of its plan, it would be required to begin implementing the plan. The bill would require the utility to complete the plan within the provided timeline, or else provide notice to the BPU that it is unable to do so.

The bill would require the BPU to develop a program to provide grants to electric public utilities for the purpose of providing financial relief to ratepayers for rate increases caused by the implementation of a plan. The bill would appropriate $300 million from the General Fund to the BPU to fund the grant program. The bill would also authorize the BPU to use moneys in the Clean Energy Fund (the colloquial name for moneys collected through the societal benefits charge) and moneys collected through the State's participation in the Regional Greenhouse Gas Initiative (RGGI), in order to issue ratepayer relief grants under the program. The bill would amend current law establishing the permitted uses of funds from the societal benefits charge and RGGI to provide for the use of those funds to provide ratepayer relief grants to offset the costs of a project undertaken pursuant to a plan.

Clean Jobs New Jersey 2023[1]

ONE OF THE FASTEST GROWING CLEAN ENERGY WORKFORCES IN THE NATION

KEY FINDINGS

- **4th** fastest-growing state for clean energy jobs
- **36%** faster job growth in clean energy than in the rest of New Jersey's economy
- **25K** clean energy construction jobs in New Jersey
- **3 OUT OF 5** net new energy jobs in New Jersey are in clean energy
- **13%** growth in clean energy jobs since 2021

SECTOR SUMMARY HIGHLIGHTS

CLEAN ENERGY OVERALL: New Jersey's clean energy economy grew 6 percent and added over 3,000 new workers in 2022. Clean energy grew 2.5 times faster than the overall state economy and was the 4th fastest growing clean energy workforce in the nation.

ENERGY EFFICIENCY: Energy efficiency is New Jersey's largest energy sector. With 36,332 workers employed, New Jersey has the fourth largest energy efficiency workforce in the U.S. However, the sector has ample opportunity for growth as employment numbers are still well below pre-pandemic highs of almost 38,000 workers employed.

RENEWABLE GENERATION: Renewable generation grew 4.2 percent in 2022, led by increased jobs in solar energy (8,781). Nationally, New Jersey has the 11th largest renewable generation workforce in the nation with almost 12,000 employed.

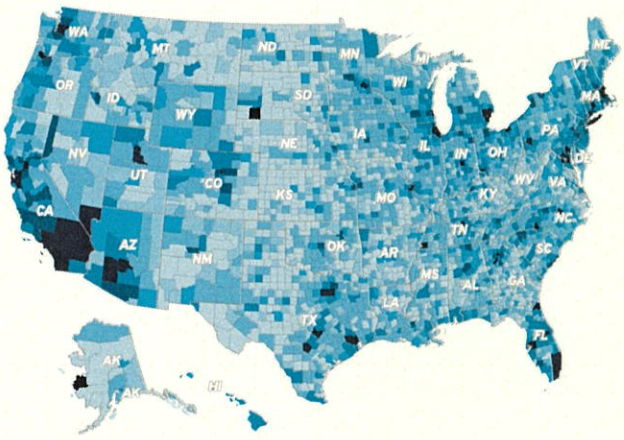
STORAGE AND GRID MODERNIZATION: Jobs in battery storage and grid modernization grew 8.5 percent in 2022 and have grown more than 15 percent since 2021.

CLEAN VEHICLES: Clean vehicle jobs are the fastest growing workforce in New Jersey's entire energy industry, growing over 15 percent in 2022 and 40 percent since 2021. At nearly 6,000 workers statewide, New Jersey is 9th in the nation for the fastest growing clean vehicle workforce.

BIOFUELS: New Jersey's biofuel jobs increased by 10.2 percent in 2022 and is the second fastest growing clean energy sector in the Garden state.

EXPLORE THE DATA FURTHER

Dive deeper into in this report further at www.cleanjobsamerica.e2.org to explore the latest state and county clean energy employment data across the entire U.S., including national and statewide rankings by total clean energy jobs, jobs per capita, and employment growth.



For information on methodology and this report's analysis—including what technologies and sectors are counted as clean energy, what jobs are not counted, definitions of clean energy sectors and subsectors, and more—visit www.cleanjobsamerica.e2.org.

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NOVEMBER 2023
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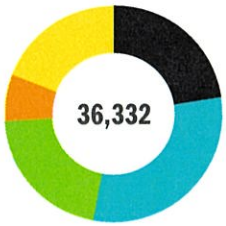
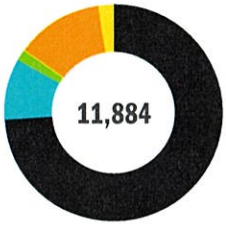
NEW JERSEY CLEAN ENERGY ECONOMY—AT A GLANCE

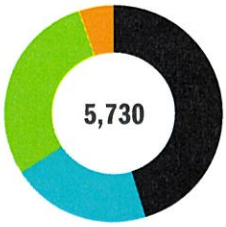
FIG 1 // NEW JERSEY CLEAN ENERGY EMPLOYMENT by sectors



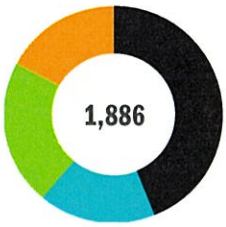
ENERGY EFFICIENCY:
- ENERGY STAR and Efficient Lighting: **8,199**
- Traditional HVAC: **11,130**
- High-Efficiency HVAC and Renewable Heating & Cooling: **7,524**
- Advanced Materials: **2,614**
- Other: **6,865**



RENEWABLE GENERATION:
- Solar: **8,781**
- Wind: **1,114**
- Geothermal: **187**
- Bioenergy/CHP: **1,520**
- Low-Impact Hydroelectric/ Hydrokinetic and Wave Energy: **281**

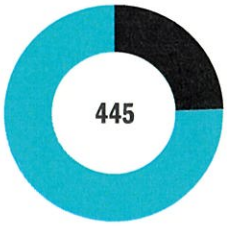


CLEAN VEHICLES:
- Hybrid Electric Vehicles: **2,597**
- Plug-In Hybrid Vehicles: **1,189**
- Electric Vehicles: **1,644**
- Hydrogen & Fuel Cell: **299**



GRID & STORAGE:
- Clean Storage:* **830**
- Smart Grid: **325**
- Micro-Grid: **411**
- Other Grid Modernization: **320**

* includes pumped hydro storage, battery storage, thermal storage, and mechanical storage detailed technologies



FUELS:
- Other Ethanol/Non-Woody Biomass: **110**
- Other Biofuels: **335**

FIG 2 // NEW JERSEY CLEAN ENERGY EMPLOYMENT by value chain

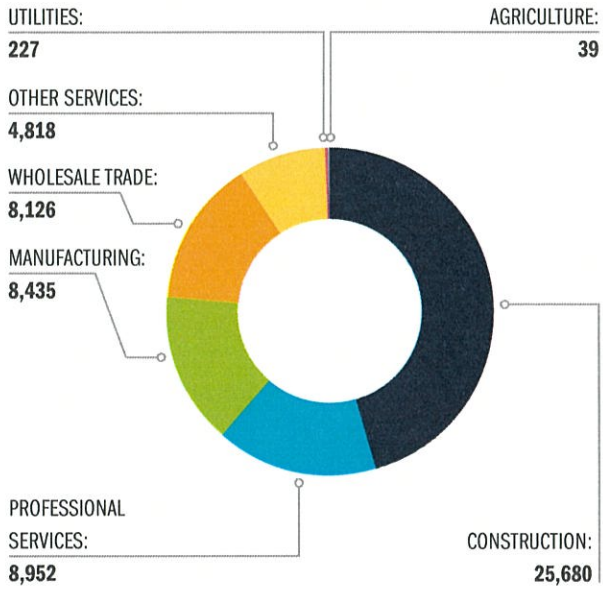
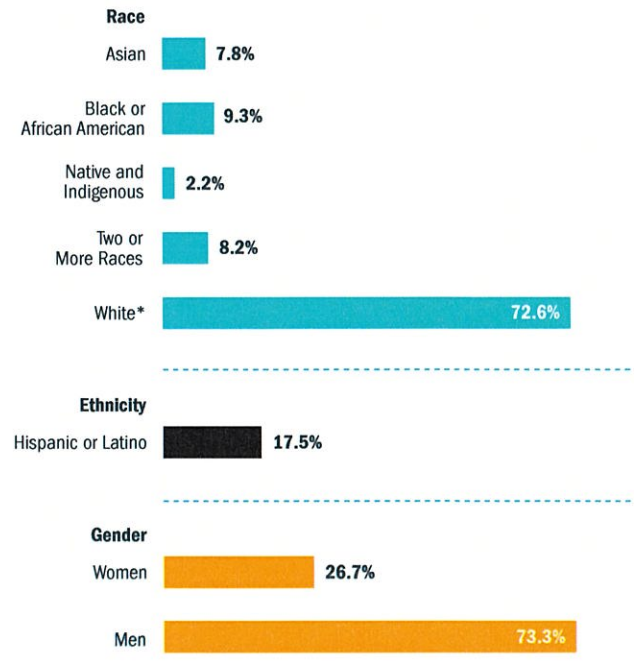


FIG 3 // NEW JERSEY CLEAN ENERGY EMPLOYMENT by demographics[2]



* Includes non-Hispanic and Hispanic whites

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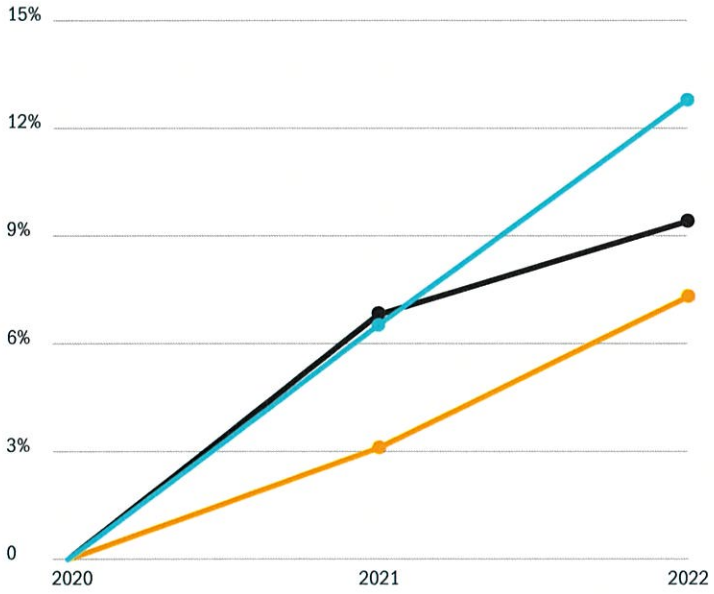
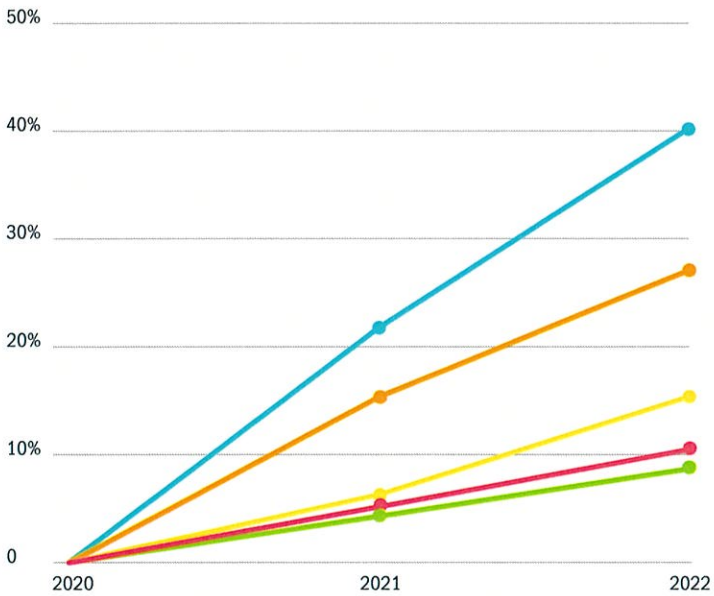
FIG 4 // NEW JERSEY ENERGY EMPLOYMENT by industry growth



2020	2021	2022
New Jersey Clean Energy Employment		
49,883	53,108 **(+6.5)**	56,277 **(+12.8)**
Overall New Jersey Employment		
3,860,482	4,123,726 **(+6.8)**	4,223,612 **(+9.4)**
Overall New Jersey Energy Employment		
131,047	135,172 **(+3.1)**	140,643 **(+7.3)**

FIG 5 // NEW JERSEY ENERGY EMPLOYMENT by clean energy sector employment growth



2020	2021	2022
Energy Efficiency		
32,880	34,585 **(+5.2)**	36,332 **(+10.5)**
Renewable Generation		
10,932	11,401 **(+4.3)**	11,884 **(+8.7)**
Storage/Grid		
1,635	1,738 **(+6.3)**	1,886 **(+15.4)**
Biofuels		
350	404 **(+15.4)**	445 **(+27.1)**
Clean Vehicles		
4,087	4,980 **(+21.8)**	5,730 **(+40.2)**

100x

NEW JERSEY CLEAN ENERGY ECONOMY—APPENDIX

Table 1 // NEW JERSEY CLEAN ENERGY EMPLOYMENT by county[3]

County	Total Clean Energy	Renewable Gen.	Storage/Grid	Biofuels	Energy Efficiency	Clean Vehicles	Job Growth	Workers Per 1K Jobs
Atlantic	1,363	262	89	70	831	111	13.9%	11.0
Bergen	6,124	708	225	16	4,475	700	5.5%	13.8
Burlington	3,034	715	128	29	1,740	423	6.1%	14.7
Camden	2,935	527	85	<10	1,925	389	6.8%	14.2
Cape May	370	26	<10	<10	285	45	4.7%	9.8
Cumberland	567	25	12	84	376	70	7.9%	9.5
Essex	3,860	430	178	<10	2,853	391	6.3%	11.3
Gloucester	1,195	89	37	46	815	208	5.3%	9.7
Hudson	2,076	338	73	<10	1,447	214	5.1%	7.5
Hunterdon	1,230	564	21	15	557	72	2.7%	27.3
Mercer	2,992	769	97	11	1,892	223	3.5%	11.2
Middlesex	5,390	858	237	18	3,681	596	4.5%	12.2
Monmouth	5,759	2,394	115	29	2,833	389	4.8%	21.5
Morris	5,431	881	168	26	3,972	384	5.7%	18.1
Ocean	2,945	1,036	44	<10	1,542	318	3.5%	16.3
Passaic	1,952	205	56	<10	1,386	298	5.0%	11.4
Salem	656	461	<10	28	129	32	1.7%	31.2
Somerset	2,449	614	61	12	1,542	221	3.7%	12.8
Sussex	774	270	17	<10	401	83	3.4%	20.6
Union	3,082	442	130	<10	2,113	390	7.7%	13.3
Warren	369	56	13	12	210	78	6.7%	11.4
State of NJ	**56,277**	**11,884**	**1,886**	**36,332**	**445**	**5,730**	**6.0%**	**13.32**

Note: 1,700 clean energy jobs are in an unknown or undefined county

Table 2 // NEW JERSEY CLEAN ENERGY EMPLOYMENT by metro

Metro Area	Total Clean Energy	Renewable Gen.	Storage/Grid	Biofuels	Energy Efficiency	Clean Vehicles
New York-Newark-Jersey City	**41,071**	8,742	1,324	147	26,802	4,057
Philadelphia-Camden-Wilmington	**7,820**	1,792	256	111	4,609	1,052
Trenton	**2,992**	769	97	11	1,892	223
Atlantic City-Hammonton	**1,363**	262	89	70	831	111
Vineland-Bridgeton	**567**	25	12	84	376	70
Ocean City	**370**	26	<10	<10	285	45
Allentown-Bethlehem-Easton	**369**	56	13	12	210	78
NJ NONMETROPOLITAN AREA	**1,725**	211	88	<10	1,327	94

Note: An additional 1,700 clean energy jobs are found in rural or nonmetropolitan areas[3]

101x

1 Unless otherwise stated, all data is based on 2022 Q4 employment data and surveys collected and analyzed by the BW Research Partnership for the 2023 U.S. Energy and Employment Report (USEER), June 2023, Department of Energy (DOE). Employment data used in this analysis comes from the U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) and a nationwide employer survey of 34,200 business establishments administered in Q1 2023. See Pages 201-206 for methodology questions.

2 Information on the representation of people with disabilities, lesbian, gay, bisexual, transgender, intersex, and queer people, migrants, religious minorities, and different age demographics in clean energy is limited. Based on the available data from the Bureau of Labor Statistics (BLS) and the supplemental employer survey used by the USEER, this analysis was unable to produce any findings regarding those groups.

3 United States Bureau of Labor Statistics (BLS) 2022 Q4 employment, all ownerships (accessed June 2023).

4 Rural clean energy jobs are calculated based on the Bureau of Labor Statistics' (BLS) nonmetropolitan area for every state, which is any area not designated as a metropolitan area by BLS. This is the most commonly used definition to analyze rural and small-town trends, and is available at https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/what-is-rural. New Jersey, Rhode Island, and the District of Columbia contain no nonmetropolitan statistical areas.

Date: March 11, 2024

To: New Jersey State Senate Environment and Energy Committee & Assembly Telecommunications & Utilities Committee

From: Ironbound Community Corporation, New Jersey Environmental Justice Alliance, and Earthjustice

Re: Written Testimony on the New Jersey Clean Energy Act of 2023, A1480 /S237

Chair Smith, Vice-Chair Greenstein, Chair DeAngelo, Vice-Chair Kennedy, and Honorable Committee Members:

Thank you for the opportunity to submit written testimony on the New Jersey Clean Energy Act of 2023. This bill sets an ambitious target to transition our state's grid to 100% clean energy by 2035. In keeping with New Jersey's commitment to environmental justice, the bill must ensure an equitable transition that prioritizes overburdened communities. We can do so by 1) eliminating ratepayer subsidies for false solutions like incinerators that are violating their permits and harming our most vulnerable residents and 2) creating a stringent, nation-leading definition of clean energy.

As this Committee is aware, the State of New Jersey has provided roughly $40 million in ratepayer subsidies for incinerators in 2021 and 2022 alone. These subsidies hinder a transition to truly clean resources, while incinerators violate their permits and poison overburdened communities with co-pollutants like mercury, iodine, and nitrogen oxides. This bill presents an opportunity to keep that money in ratepayers' pockets. It is also an opportunity to prevent more false solutions from claiming subsidies, by excluding power plants emitting co-pollutants from the definition of clean energy.

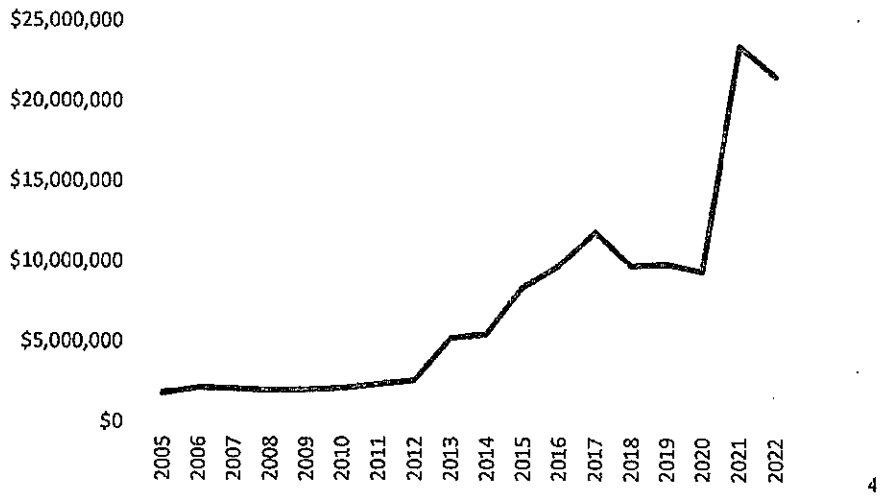
We have spoken with Senator Smith's staff several times about our concerns, and we appreciate the Senator's close attention to the issues. A strong clean energy definition, and provisions ensuring incinerators abide by the highest environmental standards to receive subsidies, are the requirements for our support of this bill.

The Bill Must End Subsidies to Incinerators With Substantive Permit Violations

The current Renewable Portfolio Standard ("RPS") [1] misguidedly allows incinerators access to clean energy credits despite being some of the most polluting energy sources in the

[1] Most states with Renewable Portfolio Standards exclude incinerators from the program. The states that do allow for incinerators are actively reconsidering this inclusion. For example, the State of Michigan recently passed a law that will eventually end subsidies for incinerators due to their significant impacts on

state.[2] For those concerned about energy affordability: the $132 million in "clean energy" subsidies paid to incinerators by New Jersey ratepayers over the last two decades demonstrate the cost of this false solution.[3] And this cost is rising rapidly:



[4]

Incinerators also have detrimental health impacts on surrounding communities who are most often low-income communities and Communities of Color.[5] Worse still, New Jersey incinerators are consistently violating their permits, having amassed over 1,700 permit violations

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overburdened communities, but only in 2040. The New Jersey State Legislature can do better by immediately cutting off subsidies for incinerators violating their permits, demonstrating our unwavering commitment to protecting overburdened communities.

[2] Incinerators "can emit more air pollutants than coal plants per unit of energy—up to 18 times more lead, 14 times more mercury, 6 times more smog-forming nitrogen oxides, 5 times more carbon monoxide, 4 times more cadmium and hydrogen chloride, and 2.5 times more greenhouse gases." Earthjustice et al., *New Jersey's Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey's Frontline Communities* at 4 (2021), https://earthjustice.org/wp-content/uploads/nj-incinerator-report_earthjustice-2021-02.pdf (attached as Attachment 2 to Exhibit 1).

[3] *See* Earthjustice, *New Jersey's Dirty Secret* (June 2023) (One pager with updated statistics on NJ's RPS subsidies to incinerators) (attached as Attachment 3 to Exhibit 1).

[4] N.J. Bd. of Pub. Utils., *2022 Renewable Portfolio Standard Compliance Report* (2022), https://www.njcleanenergy.com/files/file/BPU/EY22/EY%2022%20RPS%20Compliance%20Results%202004%20to%202022.pdf.

[5] *See* Ana Isabel Baptista & Adrienne Perovich, *U.S. Municipal Solid Waste Incinerators: An Industry in Decline* at 37–38, Tishman Env't and Design Ctr. (May 2019), https://www.no-burn.org/wp-content/uploads/2021/03/CR_GaiaReportFinal_05.21-1.pdf; Jean-François Viel et al., *Soft-tissue Sarcoma and Non- Hodgkin's Lymphoma Clusters Around a Municipal Solid Waste Incinerator with High Dioxin Emission Levels*, 152 Am. J. Epidemiology 13–19 (2000); Silvia Candela et al., *Air Pollution from Incinerators and Reproductive Outcomes: A Multisite Study*, 24 Epidemiology 863–70 (2013); Silvia Candela et al., *Exposure to Emissions from Municipal Solid Waste Incinerators and Miscarriages: A Multisite Study of the MONITER Project*, 78 Env't Int. 51–60 (2015); Yoshihiro Miyake et al., *Relationship Between Distance of Schools from the Nearest Municipal Waste Incineration Plant and Child Health in Japan*, 20 Eur. J. Epidemiology 1023–29 (2005).

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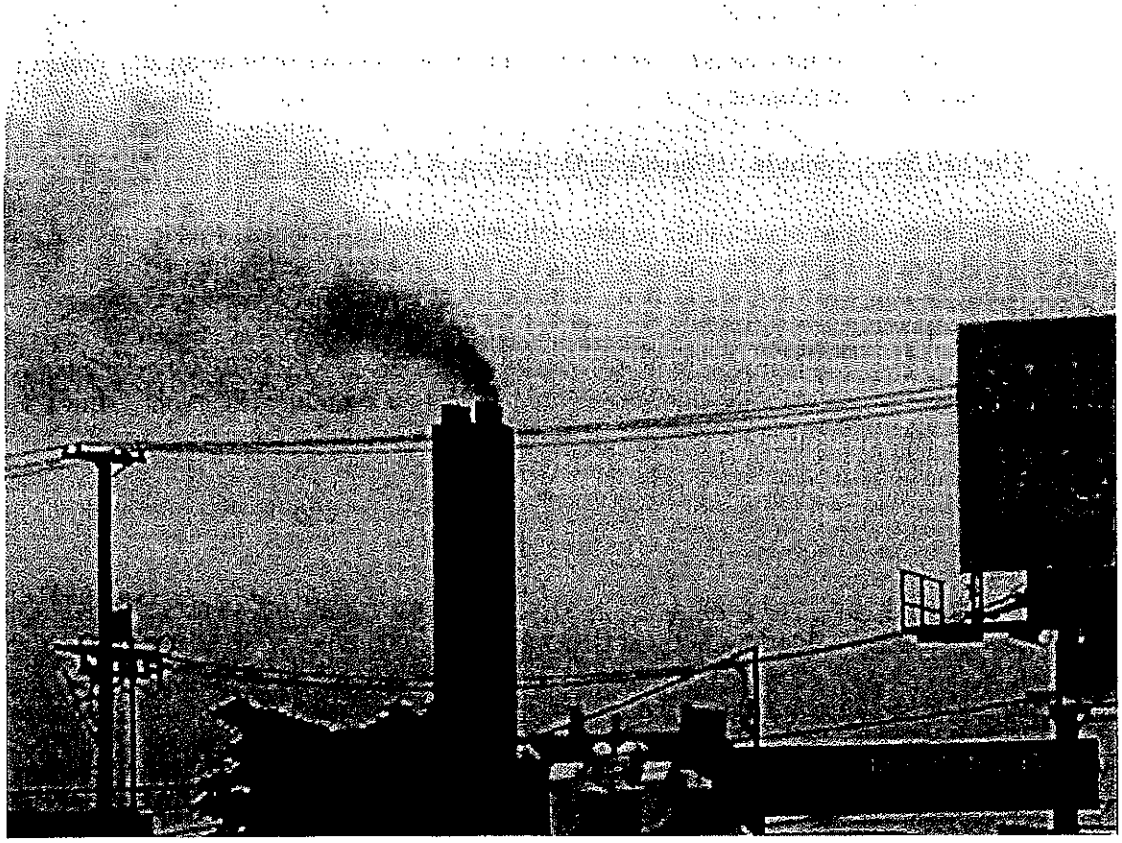
since the RPS program began in 2004.[6] This photo of an incinerator impermissibly burning iodine and releasing a massive plume of bright pink and purple pollution says it all.[7] And it is just one egregious example of how permit violations harm surrounding communities:



For environmental justice communities to support this bill, it must include provisions that disqualify incinerators from receiving subsidies if they commit substantive permit violations, like:

a. *Emissions of any air pollutant in violation of the permit emission rate, emission concentration, or capture rate lasting longer than 30 minutes;*

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[6] Earthjustice et al., *supra* note 2 at 5, 6.

[7] Photo was taken by Christian Rodriguez of Ironbound Community Corporation. Melissa Miles and Nydia Gutierrez, *Due To Covanta's Continuous 'Pink Smoke' Air Violations The Ironbound Community Urges NJ AG To Investigate And Take Enforcement*, Earthjustice (Oct. 24, 2019) https://earthjustice.org/press/2019/covanta-pink-smoke-ironbound-community-air-violations-investigation; *See also* Keith Rushing, *Ironbound Unyielding*, Earthjustice (Jan. 22, 2021), https://earthjustice.org/feature/ironbound-unyielding. As the article notes, "Inhalation of iodine, the chemical that Covanta was burning, can lead to lung irritation, coughing, and shortness of breath. Higher levels of exposure can cause bronchitis, thyroid gland disturbances, and liver and kidney damage."

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b. *Any violation of a permit condition that the facility has already violated two or more times over the course of the facility's operation;*

c. *Any violation of any condition imposed pursuant to the Environmental Justice Law (NJSA 13:1D-157 to 161) or the Environmental Justice Regulations (NJAC 7:1C).*

We appreciate Senator Smith's attention to this issue, and we provide an attachment with the specific language we propose.

The Bill Must Include A Complete Definition of Clean Energy

New Jersey has an opportunity to pass nation-leading legislation that addresses the global problem of climate change while also protecting our local communities. Other states have passed incomplete "clean energy" definitions that solely focus on GHG emissions, seeking to address only the global problem of climate change. But our fossil fuel power plants emit much more than just GHGs: they also emit mercury, lead, sulfur dioxide, nitrogen oxides, and other pollutants which cause asthma and other health problems in our local communities. False solutions like RNG and hydrogen combustion also emit those same co-pollutants. A just clean energy definition must recognize the harms from both GHGs and co-pollutants to advance a holistic approach to what is both a global and local problem. As such, we propose the following definition:

"Clean electricity production facility" means: (1) a nuclear, wind, solar, or hydroelectric electricity production facility; or (2) any other electricity production facility that generates electric energy in a manner that produces no more than a de minimis level, as determined by the department, of greenhouse gas emissions and co-pollutant emissions at the point of generation and at any point in the fuel supply chain of the facility. Any facility emissions that are high enough to require the facility to obtain an air permit (minor or major) under New Jersey's Air Pollution Control Act (N.J.S.A. 26:2C) or the implementing regulations (N.J.A.C. 7:27) are per se *not* "de minimis" emissions. "Clean electricity production facility" shall not include a resource recovery facility.

The fossil fuel industry will urge you to weaken this definition to allow for false solutions like RNG and hydrogen combustion.[8] These are not truly clean - they will continue to pour co-pollutants into overburdened communities, and we also question their accounting of GHG emissions. They do not deserve ratepayer subsidies. A stringent clean energy definition will exclude false solutions, prioritize truly clean resources, and address both global climate change and local harms from co-pollutant emission. A lax definition of clean energy will force ratepayers to continue subsidizing the fossil fuel industry, needlessly increase energy burden, and harm environmental justice communities.

A stringent clean energy definition will keep energy bills down. It is also crucial to guiding investments, regulations and policies that protect overburdened communities. Clean

[8] See our attached November 21, 2023 testimony, for further details on the problems with RNG and hydrogen combustion in the power sector. Written Testimony of Ironbound Cmty. Corp. et. al., to N.J. State S. Env't & Energy Comm. (Nov. 21, 2023) (attached as Exhibit 1).

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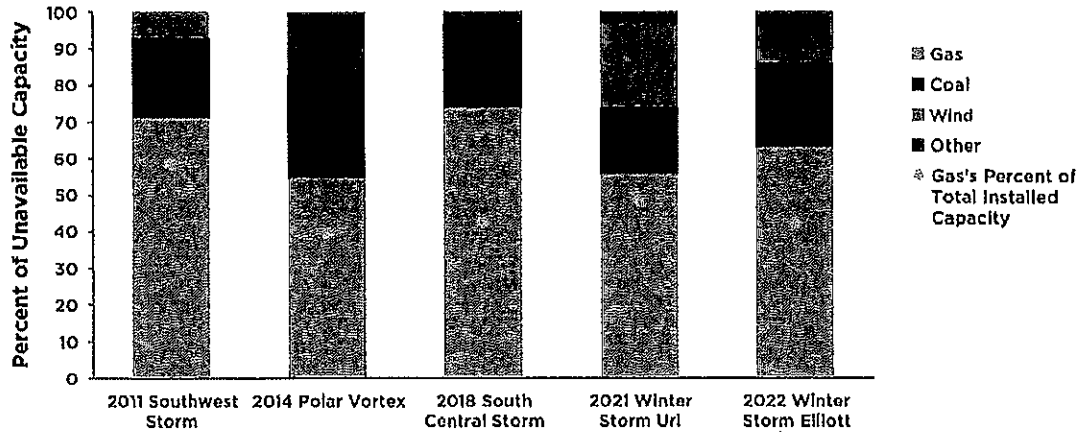
energy generation will provide more affordable energy, due to its low operation & maintenance costs, and avoidance of any fuel costs. "Once built and when the resource is available, wind and solar are the least cost resources to operate to meet electricity demand because they have zero fuel costs."[9] These are the least-cost resources to meet electricity demand - any long-term plan to lower energy costs starts with clean energy. Policies that encourage investment in true clean energy generation will drive down customers' monthly electricity bills.[10]

A robust nation-leading clean energy definition also improves reliability for the grid. As the nation witnessed, Winter Storm Elliot demonstrated the reliability concerns around fossil fuel infrastructure, especially gas infrastructure.[11] Fossil fuel outages occurred throughout ERCOT, MISO, PJM, and other utility service areas in the eastern seaboard.[12] But Winter Storm Elliot was not a one-off incident. As the chart below demonstrates, our gas power plants have often suffered reliability failures during winter storms.[13]

FIGURE 1. Generation Failures by Fuel Type During Five Extreme Winter Storms



[9] U.S. Energy Info. Admin., *Annual Energy Outlook 2023* (Mar. 16, 2023), https://www.eia.gov/outlooks/aeo/narrative/index.php#ExecutiveSummary.

[10] Policies like this one, "aimed at reducing financing costs for new generation and transmission capacity—along with efforts that reduce investment risks—would have a relatively strong influence on retail rates." Patrick R. Brown et al., Nat'l Renewable Energy Lab'y, *Retail Rate Projections for Long-Term Electricity System Models* at 19 (2022), https://www.nrel.gov/docs/fy22osti/78224.pdf.

[11] Union of Concerned Scientists, *Gas Malfunction: Calling into Question the Reliability of Gas Plants, Executive Summary* (Jan. 2024), https://www.ucsusa.org/sites/default/files/2024-01/gas-malfunction_summary.pdf (full report available at: https://www.ucsusa.org/resources/gas-malfunction).

[12] *See* Fed. Energy Regul. Comm'n and N. Am. Elec. Reliability Corp., *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott* at 91 (Oct. 2023), https://www.ferc.gov/media/winter-storm-elliott- report-inquiry-bulk-power-system-operations-during-december-2022. During three days of Winter Storm Elliott: December 22, 23, 24 of last year, fuel issues caused more than 50,000 generator outages, derates, and failures to start in the PJM region. *Id.* at 49.

[13] Union of Concerned Scientists, *Gas Malfunction*, *supra* note 11 at 1.

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New Jersey is overly reliant on gas power plants, which provide more than half of our electricity.[14] And as experts have noted, "gas plant operations are particularly susceptible to damage and disruptions during extreme weather events, which are becoming more frequent and severe as the climate changes."[15] These failures, especially during extreme weather, threaten grid reliability and can result in rolling blackouts when people need electricity the most. A bill with a stringent clean energy definition would spark investment in truly clean generation. In recent winter storms, wind and solar resources, coupled with growing battery storage, performed at their expected levels, and in some instances overperformed, while fossil fuel power plants suffered heavy outages.[16] FERC's Winter Storm Elliott report also provided several examples of how wind, solar, and storage filled the gap left by the failure of gas plants.[17]

* * * * * *

As we face this critical juncture in planning for New Jersey's energy future, we urge the legislature not to repeat the same mistakes of the RPS Program in this bill. We therefore urge the legislature both to protect vulnerable communities by eliminating ratepayer subsidies for incinerators that are violating their permits and to create a stringent, nation-leading definition of clean energy. Only by ensuring a strong clean energy definition can we reduce harm to overburdened communities, and free up ratepayer funds for true clean energy resources that actually deserve incentives.

We appreciate the opportunity to submit this testimony, and we look forward to seeing the next version of this bill. Please do not hesitate to contact us to discuss.

[14] U.S. Energy Info. Admin., N.J. Net Elec. Generation by Source (Nov. 2023), https://www.eia.gov/state/?sid=NJ#tabs-4.

[15] Union of Concerned Scientists, *Gas Malfunction*, *supra* note 11 at 1.

[16] Inst. for Energy Econ. and Fin. Analysis, *Fossil Fuels Fail Reliability Test* at 129, fig. 109 (March 2023), https://ieefa.org/sites/default/files/2023-03/Fossil%20Fuels%20Fail%20%20Reliability%20Test_March%202023.pdf.

[17] "...DESC noted that on the morning of December 24, their solar resources began to produce energy, which, while after the morning peak, contributed to DESC's ability to pump water at its pumped storage facility so that its capacity would be available for the December 24 evening peak and the December 25 pre-dawn morning peak." FERC, *Winter Storm Elliott*, *supra* note 12 at 130. Wind energy production in higher-penetration areas west of the core Event Area (SPP, MISO) was high, especially during the onset of the Event on December 22 and 23. *Id.*

Exhibit 1

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Date: November 21, 2023

To: New Jersey State Senate Environment and Energy Committee

From: Ironbound Community Corporation, New Jersey Environmental Justice Alliance, and Earthjustice

Re: Written Testimony on the New Jersey Clean Energy Act of 2023, A4658/S2978

Chairman Smith, Vice-Chair Greenstein, and Honorable Committee Members:

Thank you for the opportunity to submit written testimony on the New Jersey Clean Energy Act of 2023. This bill sets an ambitious target to transition our state's grid to 100% clean energy by 2035, using an annual matching approach. In keeping with New Jersey's commitment to environmental justice, the bill must ensure an equitable clean energy transition that prioritizes overburdened communities. To do so, the bill must define clean energy not just in terms of greenhouse gas emissions, but also co-pollutant emissions. Carbon reduction schemes in other states have failed to account for co-pollutants, which fails to take advantage of an opportunity to reduce air pollution in environmental justice communities, and in a worst case scenario, may even worsen air quality in those areas.[1]

We appreciate the latest draft amendments to S2678 dated November 10, 2023. At the November 20 hearing, Chairman Smith stated that further amendments would be made to the bill before a vote on December 18. We suggest the specific clarifying amendments summarized here and described in greater detail below:

1. Refine Section 3's definition of "clean energy production facility" to clarify the application to co-pollutants **and** greenhouse gas emissions as well as at the point of generation **and** at any point in the fuel supply chain; to not allow "net" zero greenhouse gas emissions; and to define "de minimis" very close to zero, a few pounds of emissions per year.
2. Clarify section 11 to ensure its intent to disqualify non-compliant incinerators from receiving Class II Renewable Energy Credits. (See Attachment 1).

Clarifications to the Definition of Clean Energy

The bill's current definition of clean energy, as of November 10, 2023, states that a Clean Energy Production Facility can only produce a **de minimis** level of co-pollutants **or net** greenhouse gases, at the point of generation, **or** at any point in the supply chain for fuel used at the facility.

[1] Pol. Econ. Rsch. Inst., *Green for All: Integrating Air Quality and Environmental Justice into the Clean Energy Transition* (Mar. 2021), https://peri.umass.edu/publication/item/1408-green-for-all-integrating-air-quality-and-environmental-justice-into-the-clean-energy-transition.

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We support the incorporation of co-pollutants. This ensures that New Jersey will have an equitable, nation-leading definition of clean energy.

We ask for clarification on the meaning of "de minimis." The bill would have to provide a much more specific definition for that term, very close to zero in terms of a few pounds of emissions in any given year. Thus, for example, at the very least the bill should say that any facility emissions that are high enough to require the facility to obtain an air permit (minor or major)[2] are per se *not* "de minimis" emissions. If the bill does not define "de minimis," the term may be interpreted to point to NJSA 26:2C-9.2(c)(1), which refers to the EPA's definition under the Clean Air Act that allows up to 100 tons of emissions per year per co-pollutant, numbers much too high to achieve the bill's objective of establishing nation-leading protections for public health.

We object to the concept of "net" emissions, where a facility could produce significant pollution, often in an overburdened community, and still claim zero "net" emissions by using offsets in other locations and creative accounting methods. We've already seen "renewable" gas producers and incinerators make claims of "net zero" emissions. Those are false solutions: technological, policy, and/or market-based approaches that give the semblance of taking positive climate action while in actuality delaying this action or even further contributing to adverse climate conditions. Nobody can honestly call RNG and incinerators clean energy.

Finally, the definition uses the conjunction "or" in two places. We need to be 100% sure that the definition requires facilities to demonstrate zero GHG emissions **and** zero co-pollutant emissions. And we need to be 100% sure that clean energy production facility would emit zero emissions at the point of generation **and** at any point in the fuel supply chain. We request that you clarify this language to make this intent clear.

The Bill Must Require Incinerators to Abide by the Highest Environmental Standards to Receive Class II Renewable Energy Credits

Incinerators present a case study of the type of false solutions we are trying to avoid with this bill. The current Renewable Portfolio Standard ("RPS") misguidedly allows incinerators access to clean energy credits despite being some of the most polluting energy sources in the state.[3] Not only does the $116 million in "clean energy" subsidies[4] given to incinerators using New Jersey ratepayer dollars negatively impact the affordability of in-state electricity, but incinerators also have detrimental health impacts on surrounding communities[5] who are most

[2] Under New Jersey's Air Pollution Control Act (N.J.S.A. 26:2C) or the implementing regulations (N.J.A.C. 7:27).

[3] Incinerators "can emit more air pollutants than coal plants per unit of energy—up to 18 times more lead, 14 times more mercury, 6 times more smog-forming nitrogen oxides, 5 times more carbon monoxide, 4 times more cadmium and hydrogen chloride, and 2.5 times more greenhouse gases." Earthjustice et al., *New Jersey's Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey's Frontline Communities* at 4 (2021), https://earthjustice.org/wp-content/uploads/nj-incinerator-report_earthjustice-2021-02.pdf (attached as Attachment 2).

[4] *See* Earthjustice, *New Jersey's Dirty Secret* (June 2023) (One pager with updated statistics on NJ's RPS subsidies to incinerators) (attached as Attachment 3).

[5] *See* Ana Isabel Baptista & Adrienne Perovich, *U.S. Municipal Solid Waste Incinerators: An Industry in Decline* at 37–38, Tishman Env't and Design Ctr. (May 2019), https://www.no-burn.org/wp-

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often low-income communities and Communities of Color. Worse still, New Jersey incinerators are consistently violating their permits, having amassed over 1,700 permit violations since 2004.[6] We appreciate the intent of the November 10, 2023 version of A4658/S2978 to disqualify noncompliant incinerators from receiving Class II RECs. Attachment 1 submitted here proposes the following edits to Section 11 that we believe will better achieve this goal:

1. The definition of "substantive permit violation" should be clarified to include violations that meet any of the following:
   a. *Emissions of any air pollutant in violation of the permit emission rate, emission concentration, or capture rate lasting longer than 30 minutes;*
   b. *Any violation of a permit condition that the facility has already violated two or more times over the course of the facility's operation;*
   c. *Any violation of any condition imposed pursuant to the Environmental Justice Law (NJSA 13:1D-157 to 161) or the Environmental Justice Regulations (NJAC 7:1C).*
2. Instead of requiring a "final agency action" for a finding of a substantive permit violation, we propose that the "Commissioner of Environmental Protection *inform the Board of a Notice of Violation or an Administrative Order related to a* substantive permit violation *committed by the facility* with respect to any permit issued to the facility by the Department of Environmental Protection..."
3. To provide structure and a time frame to the substantive violation assessment, we urge the legislature to add the following language: "*At least sixty days before the start of the energy year, the Board shall initiate one comprehensive proceeding to determine the eligibility, under the criteria set forth in this section, of each Class II renewable energy facility to receive a Class II REC or other similar financial incentive authorized by the Board of Public Utilities.*"
4. Section 11(c) should be amended to reflect language that requires DEP to provide BPU with information regarding all violations, Notice of Violations, or Administrator Orders issued to each Class II renewable energy facilities, highlighting the substantive violations, at least 90 days before the commencement of the Energy Year. DEP must also provide the facility's self-reported emission violations in its annual and semiannual reports. In situations where the Class II facility is located out-of-state, the Department should be allowed to obtain the information from whatever regulatory agency, be it state or federal, that holds this data to comply with its obligations under this provision.
5. A provision should be added to specify that "*The requirements of this section are nondiscretionary obligations.*"

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content/uploads/2021/03/CR_GaiaReportFinal_05.21-1.pdf; Jean-François Viel et al., *Soft-tissue Sarcoma and Non-Hodgkin's Lymphoma Clusters Around a Municipal Solid Waste Incinerator with High Dioxin Emission Levels*, 152 Am. J. Epidemiology 13–19 (2000); Silvia Candela et al., *Air Pollution from Incinerators and Reproductive Outcomes: A Multisite Study*, 24 Epidemiology 863–70 (2013); Silvia Candela et al., *Exposure to Emissions from Municipal Solid Waste Incinerators and Miscarriages: A Multisite Study of the MONITER Project*, 78 Env't Int. 51–60 (2015); Yoshihiro Miyake et al., *Relationship Between Distance of Schools from the Nearest Municipal Waste Incineration Plant and Child Health in Japan*, 20 Eur. J. Epidemiology 1023–29 (2005).

[6] Earthjustice et al., *supra* note 3 at 5, 6.

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Lastly, as we face this critical juncture in planning for New Jersey's energy future, we urge the legislature not to repeat the same mistakes of the RPS Program in this bill. We therefore urge the legislature to retain the language specifically excluding resource recovery facilities from the definition of "clean electricity production facility."

True Clean Energy Resources, Meeting A Robust Clean Energy Definition, Will Improve Energy Affordability

This bill, if clean energy is defined properly, provides a great opportunity to incentivize construction of new clean energy generation serving our state. Clean energy generation will provide more affordable energy, due to its low operation & maintenance costs, and avoidance of any fuel costs.[7] These are the least-cost resources to meet electricity demand - any long-term plan to lower energy costs starts with clean energy. Policies that reduce financing costs and investment risk for construction of true clean energy generation will drive down customers' monthly electricity bills.[8]

On the other hand, a lax clean energy definition could allow false solutions with high fuel costs to access ratepayer subsidies. Even worse, if constructed now, those power plants would burn fuel for decades - with future ratepayers forced to cover high fuel and O&M costs.

True Clean Energy Resources, Meeting A Robust Clean Energy Definition, Will Improve Grid Reliability

A transition to true clean energy resources would also benefit the reliability and resiliency of New Jersey's grid. New Jersey's grid currently depends heavily on infrastructure carrying fracked gas from other states to our gas-fired power plants. During Winter Storm Elliott, gas-fired units were plagued by fuel issues, freezing, and mechanical/electrical issues.[9] FERC has repeatedly recommended that state legislatures "take action to establish reliability rules for natural gas infrastructure..."[10] False solutions like RNG would also rely on this infrastructure. It would be unwise to increase dependence on gas infrastructure until reliability rules are in place.

While gas plants faltered during Winter Storm Elliott, solar and wind performed reliably. Throughout the storm, from December 22 to 26, the actual energy production from PJM's wind and solar resources closely matched the day-ahead forecast, demonstrating their reliability.[11]

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[7] "Once built and when the resource is available, wind and solar are the least cost resources to operate to meet electricity demand because they have zero fuel costs." U.S. Energy Info. Admin., *Annual Energy Outlook 2023* (Mar. 16, 2023), https://www.eia.gov/outlooks/aeo/narrative/index.php#ExecutiveSummary.

[8] Policies like this one, "aimed at reducing financing costs for new generation and transmission capacity—along with efforts that reduce investment risks—would have a relatively strong influence on retail rates." Patrick R. Brown et al., Nat'l Renewable Energy Lab'y, *Retail Rate Projections for Long-Term Electricity System Models* at 19 (2022), https://www.nrel.gov/docs/fy22osti/78224.pdf.

[9] Fed. Energy Regul. Comm'n and N. Am. Elec. Reliability Corp., *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott* at 91 (Oct. 2023), https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022. During three days of Winter Storm Elliott: December 22, 23, 24 of last year, fuel issues caused more than 50,000 generator outages, derates, and failures to start in the PJM region. *Id.* at 49.

[10] *Id.* at 20. *See also id.* at 137 (Key Recommendation 4).

[11] *Id.* at 129 (Figure 109).

113x

FERC's report also provided several examples of how wind, solar, and storage filled the gap left by failure of gas plants.[12]

Section 9 of the bill requires the Board to create programs to use Zero-Emission Resources and Reduced-Emission Resources to satisfy New Jersey's electric reliability requirements. Those programs should be created through rulemaking, in the same way that the Clean Energy Attribute Credit program would be created through rulemaking in Section 4 of the bill. As detailed above, true clean energy resources that emit zero GHG emissions **and** zero co-pollutant emissions performed reliably during Winter Storm Elliott, and will improve grid reliability. The Board should address any reliability issues with true clean energy resources, and non-invasive measures like energy efficiency, demand response, distributed energy + storage, and grid enhancements. Our concerns about reduced-emission resources, which **do** have co-pollutant emissions, are detailed below.

A Strict Clean Energy Definition Will Prevent Ratepayer Subsidies for False Solutions

A robust definition of clean energy will avoid handing Clean Energy Attribute Credits to facilities employing false solutions, like Renewable Natural Gas, or combustion of hydrogen.

a. RNG Does Not Deserve Ratepayer Subsidies

The industry term "Renewable Natural Gas" comprises various sources, all with very different levels of GHG emissions, and varying levels of availability: landfills, wastewater sludge, agricultural residue, forestry and forest product residue, energy crops, municipal solid waste, or beef/poultry manure. All of these forms of RNG, when combusted, will produce the same co-pollutants as fracked methane gas.[13]

Despite offering no co-pollutant benefit over methane gas, RNG will be many times more expensive than fracked gas (or clean energy). Numerous studies, including those from the fossil fuel industry, forecast RNG costs at five to seventeen times the cost of fracked gas.[14] RNG will

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[12] "...DESC noted that on the morning of December 24, their solar resources began to produce energy, which, while after the morning peak, contributed to DESC's ability to pump water at its pumped storage facility so that its capacity would be available for the December 24 evening peak and the December 25 pre-dawn morning peak." *Id.* at 130. Wind energy production in higher-penetration areas west of the core Event Area (SPP, MISO) was high, especially during the onset of the Event on December 22 and 23. *Id.*

[13] Earthjustice & Sierra Club, *Rhetoric vs. Reality: The Myth of Renewable Natural Gas" for Building Decarbonization* (2020), https://earthjustice.org/wp-content/uploads/report_building-decarbonization-2020.pdf. *See also* Laura Feinstein & Eric de Place, *The Four Fatal Flaws of Renewable Natural Gas*, Sightline Inst. (Mar. 9, 2021), https://www.sightline.org/2021/03/09/the-four-fatal-flaws-of-renewable-natural-gas/.

[14] The American Gas Foundation estimates that RNG will cost up to $45 per million British thermal units (MMBtus), which is up to 5 times more costly than the historically high market price for fossil gas which traded as high as $8.59 in August 2022. Nat. Res. Def. Council, *Biogas and Synthetic Gas Not the Solution to Polluting Natural Gas in Today's U.S. Energy System* (June 15, 2020), https://www.nrdc.org/media/2020/200615. A California Energy Commission study estimates that biogas will cost $8 to $40 per MMBtu and that synthetic methane will cost $37 to almost $90 per MMBtu at scale in 2050. Cal. Energy Comm'n, *Natural Gas Distribution in California's Low-Carbon Future* (Oct. 2019), https://ww2.energy.ca.gov/2019publications/CEC- 500-2019-055/CEC-500-2019-055-D.pdf.

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also depend on the same gas infrastructure that underperformed during several recent winter storms, and is due for costly upgrades, as detailed above.

In sum - RNG provides no benefits in pollution reduction, affordability, or reliability. The current clean energy definition in the bill excludes, correctly, this false solution.

b. Hydrogen Combustion Does Not Deserve Ratepayer Subsidies

Green hydrogen production is an inefficient and expensive process that is not a good use of New Jersey's renewable energy resources. 70% of the renewable energy that goes into the production of green hydrogen is lost. To produce enough green hydrogen to replace all current industrial consumption of gray hydrogen would require the same amount of renewable energy currently produced by the entire European Union.[15]

Combusting any type of hydrogen in a power plant leads to nitrogen oxide (NO_x) emissions up to **six times** that of methane.[16] These emissions cannot be controlled with existing power plant technology, and any plant combusting hydrogen would need extensive and costly retrofitting to be able to combust hydrogen at high levels safely.[17] Even if NOx emissions from hydrogen were able to be contained within permitted limits, we know that communities living near power plants currently emitting NOx within permitted limits already experience heighted rates of heart disease, asthma, birth defects, and more. Including hydrogen combustion in this definition would resign these communities to more decades of disproportionate health impacts.

Because of its small molecular size and high flammability, hydrogen requires specialized infrastructure to be stored and transported safely. Building a hydrogen pipeline can cost up to 68% more per mile than a conventional fossil gas pipeline.[18] In addition to being inefficient to produce, costly for ratepayers, and harmful to public health, all hydrogen is an indirect greenhouse gas that extends the lifetime of methane in the atmosphere.[19]

The bottom line: Green hydrogen will not help New Jersey meet its decarbonization goals. Including it under the definition of clean energy could divert renewable resources away from directly decarbonizing the grid, while costing ratepayers and harming environmental justice communities.

We appreciate the opportunity to submit this testimony, and we look forward to seeing the next version of this bill. Please do not hesitate to contact us to discuss.

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[15] Esben Hegnsholt et al., *The Real Promise of Hydrogen*, Boston Consulting Grp. (July 31, 2019), https://www.bcg.com/publications/2019/real-promise-of-hydrogen.

[16] Mehmet Salih Cellek & Ali Pinarbaşi, *Investigations on performance and emission characteristics of an industrial low swirl burner while burning natural gas, methane, hydrogen-enriched natural gas and hydrogen as fuels*, 43 Int'l J. of Hydrogen Energy 1194 (2018).

[17] Gen. Elec., *Hydrogen for power generation* (2022), https://www.ge.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/future-of-energy/hydrogen-for-power-gen-gea34805.pdf.

[18] Earthjustice, *Reclaiming Hydrogen for a Renewable Future* (2021), https://earthjustice.org/wp-content/uploads/hydrogen_earthjustice_2021.pdf.

[19] Ilissa B. Ocko & Steven P. Hamburg, *Climate consequences of hydrogen emissions*, 22 Atmospheric Chemistry and Physics 9349 (2022).

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Attachment 1

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11. (New section)

a. As used in this section:

"Class II renewable energy" means the same as the term is defined in section 3 of P.L.1999, c.23 (C.48:3-51).

"Class II renewable energy certificate" or "Class II REC" means a renewable energy certificate capable of satisfying the requirement for the procurement of Class II renewable energy established in paragraph (2) of subsection d. of section 38 of P.L.1999, c.23 (C.48:3-87).

"Energy year" means the same as the term is defined in section 3 of P.L.1999, c.23 (C.48:3-51).

"Substantive permit violation" means a violation that resulted in, or likely resulted in, air, water, or soil pollution in excess of the allowable limits under the relevant permit or other approval, including any violation that meets any one of the following requirements:

- Emission of any air pollutant in violation of the permit emission rate, emission concentration, or capture rate lasting longer than 30 minutes;
- Any violation of a permit condition that the facility has already violated two or more times over the course of the facility's operation;
- Any violation of any condition imposed pursuant to the Environmental Justice Law (NJSA 13:1D-157 to 161) or the Environmental Justice Regulations (N.J.A.C. 7:1C)

b. Notwithstanding the provisions of section 38 of P.L.1999, c.23 (C.48:3-87), or the rules and regulations adopted pursuant thereto, to the contrary, a Class II renewable energy facility shall not be eligible to receive a Class II REC or other similar financial incentive authorized by the Board of Public Utilities during an energy year, if, during the prior energy year, the Commissioner of Environmental Protection informed the Board of a Notice of Violation or an Administrative Order related to a substantive permit violation committed by the facility with respect to any permit issued to the facility by the Department of Environmental Protection, including an air pollution control permit issued pursuant to the "Air Pollution Control Act (1954)," P.L.1954, c.212 (C.26:2C-1 et seq.), or a permit or other approval issued pursuant to the "Solid Waste Management Act," P.L.1970, c.39 (C.13:1E-1 et seq.). At least sixty days before the start of the energy year, the Board shall initiate one comprehensive proceeding to determine the eligibility, under the criteria set forth in this section, of each Class II renewable energy facility to receive a Class II REC or other similar financial incentive authorized by the Board of Public Utilities.

c. At least ninety days before the beginning of each Energy Year, the Department of Environmental Protection shall inform the Board of Public Utilities of all violations issued to each Class II renewable energy facility, with substantive violations highlighted, attaching all annual and semiannual reports submitted by the Class II renewable energy facility pursuant to 40 C.F.R. 60.59b(g) and (h) within the prior energy year. The Department shall also promptly inform the Board of any Notice of Violation or an Administrative Order related to a substantive permit violation committed by a Class II renewable energy facility. The Department is authorized to seek such information from the U.S. Environmental Protection Agency or any regulatory agency of another state in order to comply with its obligations under this provision.

d. The requirements of this section are nondiscretionary obligations.

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Attachment 2

NEW JERSEY'S DIRTY SECRET

THE INJUSTICE OF INCINERATORS AND TRASH ENERGY IN NEW JERSEY'S FRONTLINE COMMUNITIES

EARTHJUSTICE

VERMONT

Ironbound Community Corporation

NJEJA

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ACKNOWLEDGEMENTS

This report is presented by Earthjustice and the Vermont Law School Environmental Advocacy Clinic, in partnership with the Ironbound Community Corporation and the New Jersey Environmental Justice Alliance.

The report was written by Earthjustice (Jonathan Smith, Staff Attorney; Jasmine Jennings, Associate Attorney; Victoria Bogdan Tejada, Associate Attorney) and the Vermont Law School Environmental Advocacy Clinic (Rachel Stevens, Staff Attorney; Brittany Forrest, Student Clinician; Justin Wood, Student Clinician) with the assistance of Leslie Herrera, Litigation Assistant, Earthjustice; and Heather Gill-Frerking, Taylor Tavormina, and Veronica Ung-Kono, Student Clinicians, Vermont Law School Environmental Advocacy Clinic.

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EXECUTIVE SUMMARY

Burning trash is a harmful and unjust way to manage waste. Incineration does not make waste disappear—instead it converts waste into air pollution and toxic ash that contaminate the surrounding communities, which more often than not are communities of color and low-income. And while incinerator companies label incineration as clean energy, incineration is one of the most polluting and most expensive methods to generate energy.

New Jersey is no stranger to the negative impacts of incinerators, many of which are located in the state's overburdened, environmental justice communities. Residents of these communities are more susceptible to asthma and COVID-19 due to the cumulative impacts from incinerators and other pollution sources. New Jersey's four currently operating incinerators (Covanta Essex, Covanta Camden, Covanta Union, and Wheelabrator Gloucester) and one recently closed incinerator (Covanta Warren) collectively:

- Emitted over 10,000 tons of air pollution and nearly 7 million tons of greenhouse gases from 2015 to 2018;
- Placed among the state's top 5 emitters of a dozen distinct air pollutants;
- Violated their air permits over 1,700 times since 2004; and
- Collected nearly $30 million in "clean" energy subsidies from utilities and ratepayers since 2004, despite these emissions and violations.

But there is a better way to manage waste. By adopting zero-waste principles, we can create a society that uplifts a shared value of ourselves and our resources. To achieve this zero-waste future, New Jersey must:

- Remove incineration from the State's Renewable Portfolio Standard to stop subsidizing polluting incinerators with money intended for renewable, non-polluting sources of energy;
- Ban the construction or expansion of incineration facilities, and plan for the closure and remediation of existing facilities; and
- Prioritize job-creating, energy-saving, and community-affirming zero-waste solutions for waste management.

To stay in the loop about how you can help stop the burn and move New Jersey to a zero waste future, visit www.ironboundjustice.org.

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INCINERATORS ARE BIG POLLUTERS

In the United States...

Waste incinerators burn large amounts of trash in giant combustion chambers, converting the waste into air emissions and toxic ash. Some incinerators use the heat from this burning to produce steam that turns turbines to generate electricity—technology similar to how coal plants produce electricity. Though the incineration industry claims that this energy is clean and renewable, incinerators are the most emission-intensive form of generating electricity in the U.S. today, and can emit more air pollutants than coal plants per unit of energy—up to 18 times more lead, 14 times more mercury, 6 times more smog-forming nitrogen oxides, 5 times more carbon monoxide, 4 times more cadmium and hydrogen chloride, and 2.5 times more greenhouse gases.[1]

Incinerators have a high quantity of unpredictable emissions because what they burn varies wildly depending on what trash happens to be collected at any given time.[2] The diesel trucks that transport waste to incinerators also spew harmful pollutants into the surrounding community.[3] And the ash that incinerators produce can concentrate toxic chemicals like lead, cadmium, and dioxins.[4] These chemicals can be found at levels high enough that the ash needs to be disposed of as hazardous waste, even if the waste was non-hazardous before it was burned.[5] Incinerators send this ash to landfills or to be used in products like concrete to build roads, where it can continue to harm communities.[6] Pollution from incinerators can increase the risk of miscarriages, preterm birth, and non-Hodgkin's lymphoma in adults, and wheeze and fatigue in children that live and go to school nearby.[7]

Covanta Essex

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In New Jersey...

Over the four years from 2015 to 2018, New Jersey's five municipal solid waste incinerators collectively emitted these harmful pollutants:

6,736,600 tons OF CARBON DIOXIDE	**1,176 tons** OF CARBON MONOXIDE	**524 tons** OF PM10 COARSE PARTICULATE MATTER (AKA SOOT)
8,437 tons OF SMOG-FORMING NITROGEN OXIDES	**764 tons** OF SULFUR DIOXIDE	**485 tons** OF PM2.5 FINE PARTICULATE MATTER

Over those same years, New Jersey's incinerators were some of the top emitters of air pollutants when compared to all 215 New Jersey major facilities with air permits:

Covanta Camden

- #1 EMITTER OF CADMIUM AND HYDROGEN CHLORIDE
- #3 EMITTER OF MERCURY AND LEAD

Covanta Union

- #3 EMITTER OF CHROMIUM, HYDROGEN CHLORIDE, AND PCBS
- #5 EMITTER OF NITROGEN OXIDES

Covanta Essex

- #2 EMITTER OF ARSENIC, HYDROGEN CHLORIDE, MERCURY, AND NITROGEN OXIDES
- #3 EMITTER OF BERYLLIUM
- #4 EMITTER OF CARBON TETRACHLORIDE
- #5 EMITTER OF LEAD AND SULFUR DIOXIDE
- #6 EMITTER OF CARBON MONOXIDE

Covanta Warren

- #5 EMITTER OF NICKEL

Wheelabrator Gloucester

- #2 EMITTER OF POLYCYCLIC ORGANIC MATTER

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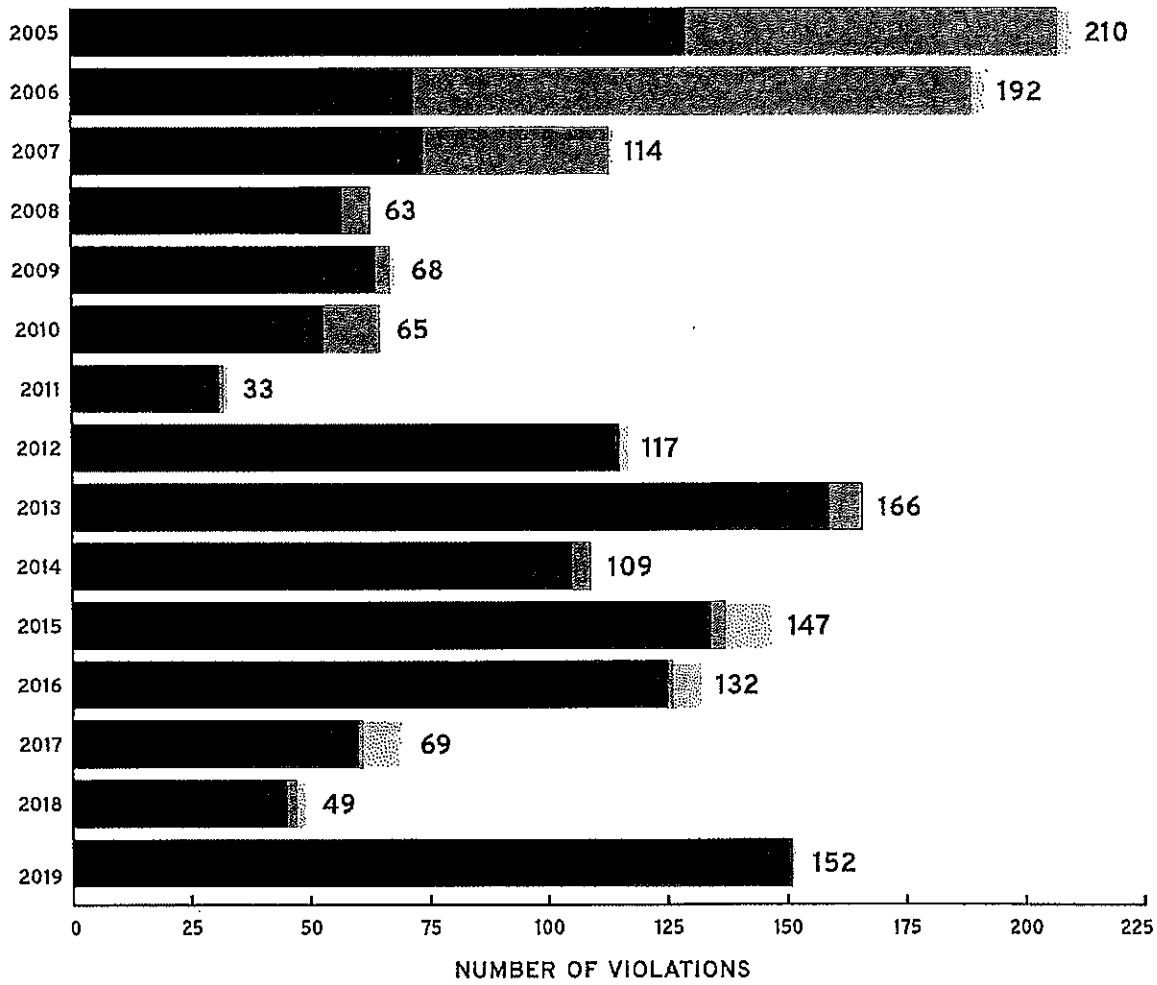
In New Jersey...

While some of these emissions were allowed by the incinerators' air permits, many were not. Collectively, these incinerators violated their permits over 1,700 times since June 2004—sometimes with emissions two to eight times above permit limits.[8]

Total Air Permit Violations By Year, 2005-2019*



TOTAL VIOLATIONS BY FACILITY

ESSEX	CAMDEN	UNION	WARREN	GLOUCESTER
824	401	149	274	38

*Violations may be undercounted. Only includes data from New Jersey Department of Environmental Protection DatamIner website.

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INCINERATORS HARM OVERBURDENED COMMUNITIES

In the United States...

Environmental justice, systemic racism, and pollution collide at the sites of incinerators across the country. According to a recent report by the New School, 79% of all municipal solid waste incinerators in the United States are located in environmental justice communities—communities of color or low-income communities that often bear a disproportionate burden of environmental harms.[9] Between 67% and 83% of the twelve incinerators that emit the most nitrogen oxides, sulfur dioxide, lead, mercury, particulate matter, and carbon monoxide are located in environmental justice communities, depending on the pollutant.[10] Environmental justice communities suffer from many health burdens including elevated blood levels, asthma, preterm births, and increased cardiovascular disease related morbidity and mortality rates.[11]

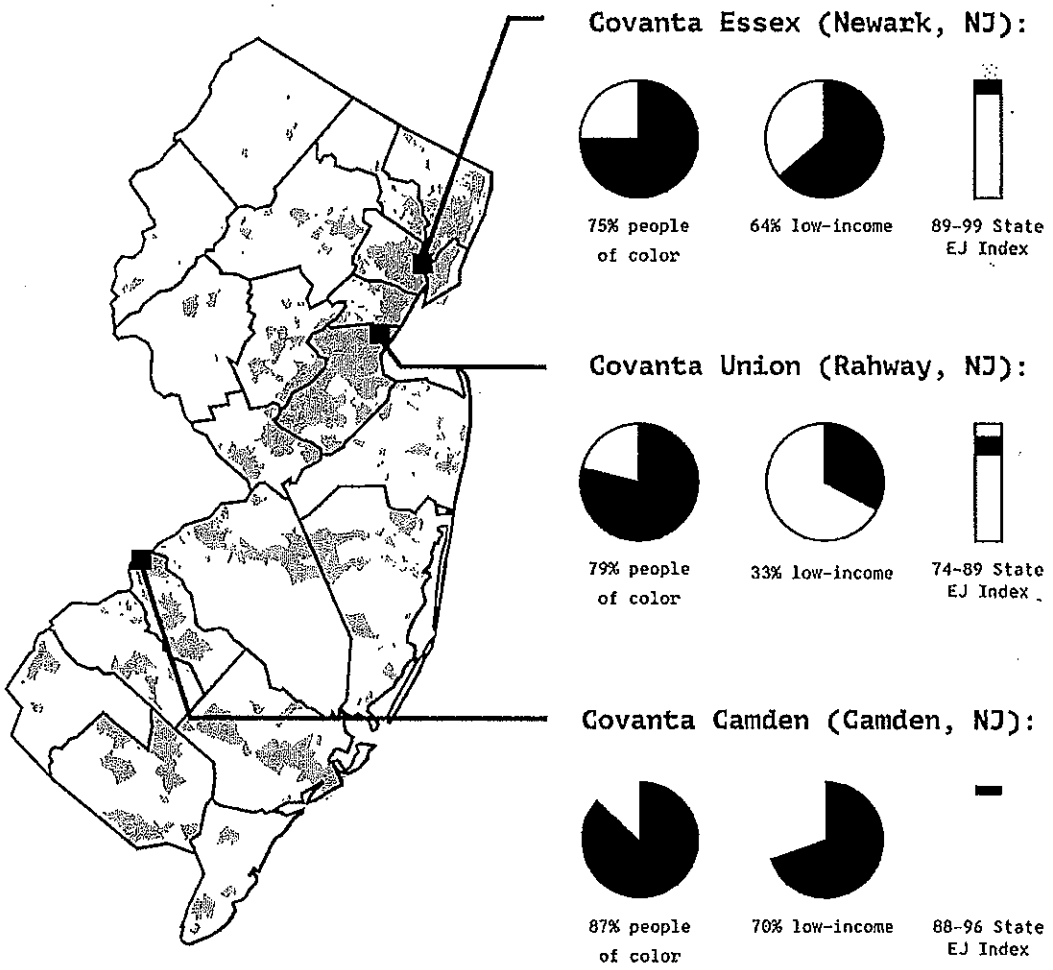
Race is a significant predictor of living near a toxic facility.[12] This is not coincidental. While municipalities zoned suburban areas for single-family homes and commercial developments, urban or more densely populated areas retained industrial zoning requirements, leading to decreased land values.[13] Redlining policies that historically restricted access to home loans and mortgages segregated cities and caused divestment in communities of color.[14] This created industrial "hot spots" where the placement of one facility invited others. As the pattern persisted, low-income residents and residents of color were pushed to reside in marginal lands that were ultimately selected for industrial development.[15] Many of these neighborhoods became environmental justice communities, which suffer cumulative impacts from environmental hazards, unhealthy land uses and a lack of health, economic, or social benefits.

> "Factories and superfunds polluting and dumping all kinds of things right down the street from low-income communities just shows how much they don't care. You don't see this happening at high-income communities, this shouldn't be happening next to any communities."
>
> —NYHEIM CARTER, youth organizer

125x

In New Jersey...

New Jersey's three largest incinerators are located in census blocks that New Jersey's recently enacted environmental justice law identifies as the equivalent of environmental justice communities (shown in blue below).[16] According to the U.S. Environmental Protection Agency, the communities located within one mile of these three incinerators have some of the highest environmental justice indicators in New Jersey.[17]



All three of these incinerators are also within or adjacent to neighborhoods that the federal government redlined in the 1930's, a practice recognized as segregating cities and leading to divestment in communities of color and low-income communities.[18] Over half a million people live within three miles of one of these three incinerators. Incinerators in these environmental justice communities emitted more air pollutants than other nearby stationary sources in 2015-2018 as shown on the next page:

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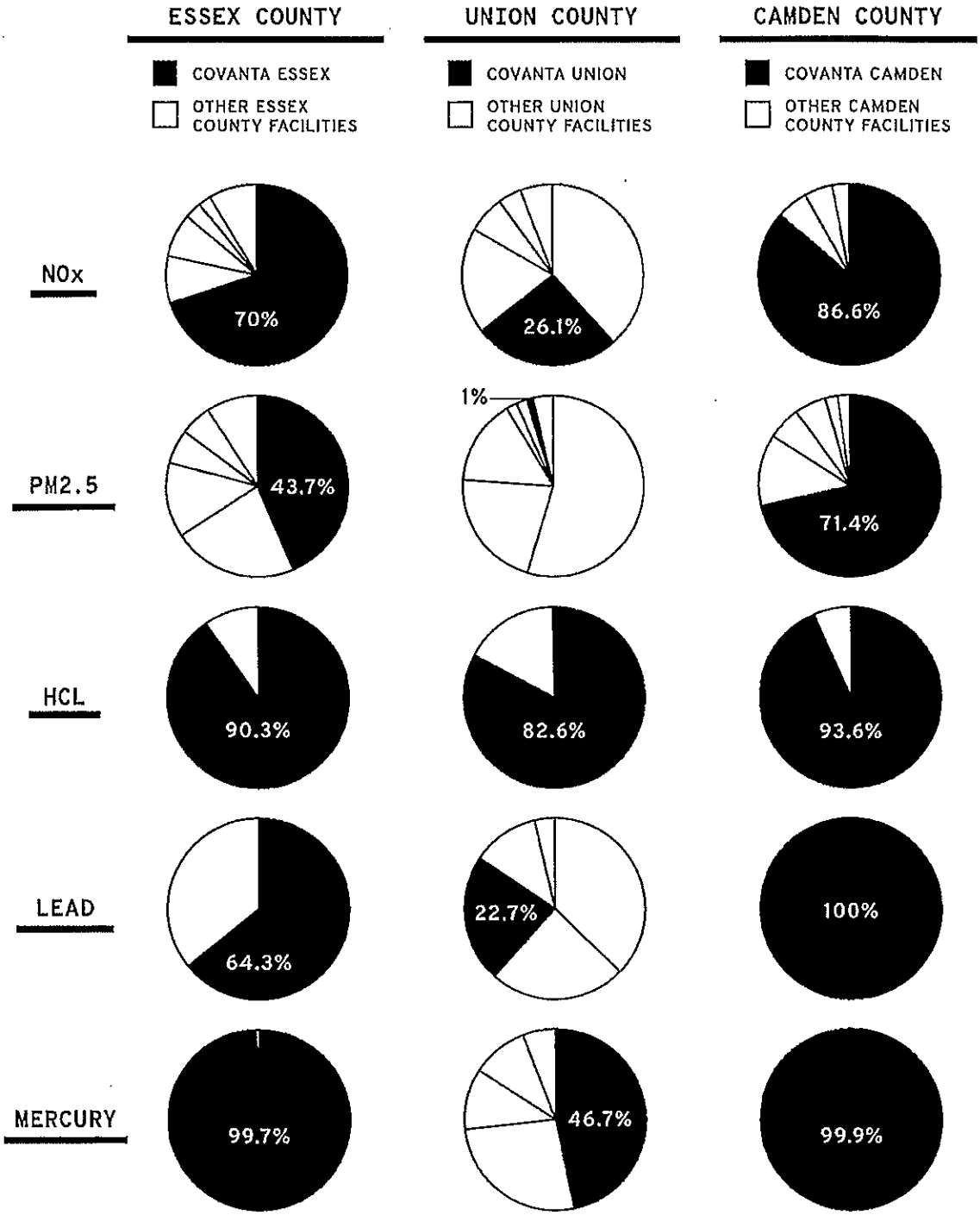
In New Jersey...

Emissions from Incinerators Compared to Other Stationary Sources in the Same County, 2015-2018



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In New Jersey...

In addition, Covanta Essex and Covanta Camden, the two incinerators with the highest EJ indicators, are also the incinerators with the greatest number of permit violations since June 2004: over 800 for Covanta Essex, and over 400 for Covanta Camden.[19] These include emissions over 8 times higher than the permit limit, emissions associated with the unpermitted burning of iodine, and multiple years in which a single incinerator had over 100 violations.[20]

Waste incinerators are major emitters of pollutants like PM2.5 and NOx that, together with other socio-economic factors, make communities more susceptible to respiratory infections like COVID-19.[21] Black and Latinx residents in the United States have been three times as likely to become infected from COVID-19 as white residents.[22] Moreover, Black and Latinx people have been nearly twice as likely to die from the virus.[23] This pattern persists in New Jersey, where residents face cumulative impacts from multiple polluting sources, including incinerators such as those in Essex, Camden, and Union counties that are significant local contributors to PM2.5 and NOx emissions.[24] The communities that host incinerators in New Jersey have underlying public health vulnerabilities related specifically to COVID-19. A recent study found that COVID-19 was the #1 cause of death for Black, Latinx, and Asian people in New Jersey in 2020.[25] To date, Essex, Camden, and Union counties have reported some of the highest coronavirus death rates in the state.[26] Grounded in a history of exclusion and discrimination, incinerators in environmental justice communities contribute to existing public health risks on residents.

> "As residents of the Ironbound for over 60 years, my family has suffered the devastating effects of pollution on the environment. We have endured lung cancer, breast cancer, colon cancer, and asthma—some of the most heinous of malignancies that have affected our loved ones. I stand against the development of any further incinerators or pollution causing chemical or manufacturing plants in the Ironbound. We deserve to breathe clean air!"
>
> —IRIS ALVAREZ, community leader

128x

INCINERATORS DON'T DESERVE CLEAN ENERGY SUBSIDIES

In the United States...

Many incinerators are money-losing businesses that rely on significant government subsidies to stay afloat—often at the expense of the financial stability of their host municipalities.[27] Incinerators are costlier to build and operate per unit of energy produced than almost any other electricity generation technology in the U.S.—more than solar, onshore wind, or distributed generation.[28] To make up for these high costs, incinerators often charge their host municipalities above-market tipping fees for waste disposal, often requiring payment whether or not waste is sent to the incinerator.[29] This has pushed cities like Detroit, Michigan and Harrisburg, Pennsylvania towards, or into, bankruptcy just to prop up their incinerators.[30]

Another way incinerators stay afloat is by syphoning subsidies intended for clean energy—while citizens foot the bill. Waste incinerators often use the heat energy created as a byproduct from burning trash to generate small amounts of electricity. Although the process pollutes and contributes to climate change, incinerators profit from that energy, calling it "renewable" for the purpose of State renewable energy laws like Renewable Portfolio Standard (RPS) programs. These RPS programs set renewable electricity goals and require utilities to source a certain portion of the electricity they sell from "renewable" sources, and can create powerful incentives to shift to truly clean energy.

But about twenty-one States include waste incineration in these programs meant for "renewable" energy, even though waste incineration is neither clean nor renewable.[31] Such classification, promoted by the incineration industry, makes burning trash eligible for subsidies that should be going to true renewable energy projects like wind and solar instead. Not only are incinerators slowing our transition to renewables, they contribute to climate change as the most greenhouse gas-intensive source of electricity.[32] In 2018 alone, incinerators in the U.S. emitted 11 million tons of carbon dioxide.[33]

Solar and wind represent the cheapest, cleanest, and most productive forms of renewable energy.[34] Including incineration in legal definitions of renewable energy hampers investments in these cleaner, more equitable sources of local energy.

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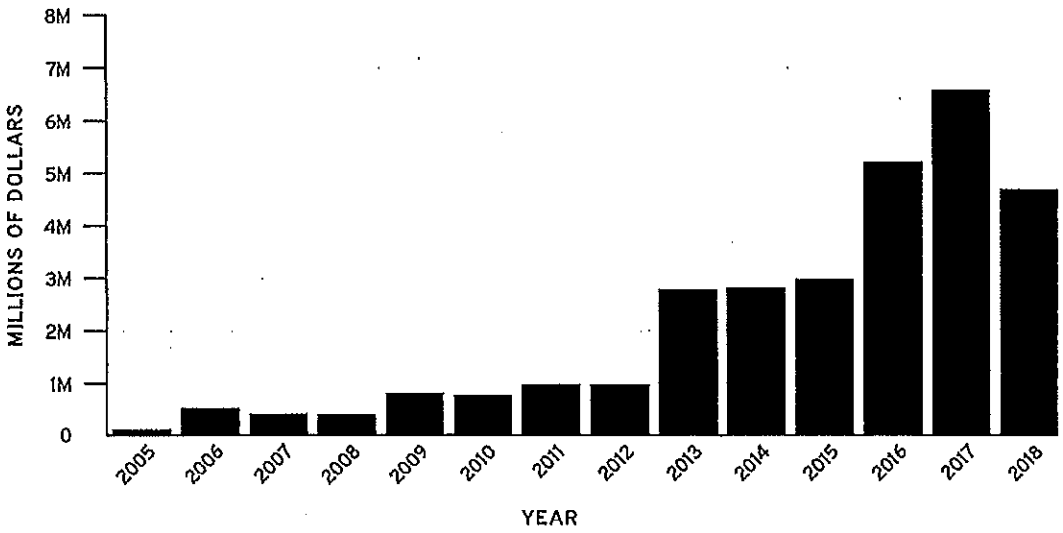
In New Jersey...

New Jersey is one of the States that allows incinerators to exploit the RPS program and obtain subsidies as "renewable" energy. While New Jersey law requires eligible waste incinerators to meet "the highest environmental standards" and minimize "any impacts to the environment and local communities" in order to get these subsidies, most New Jersey incinerators have never met these requirements and the State has not enforced the law.[35] All five of New Jersey's incinerators have violated their air pollution permits nearly every year since 2004.[36] Despite all of these violations, electric utilities have paid over $30 million in ratepayer money to New Jersey's incinerators under this program.[37]

Annual RPS Subsidies to NJ Incinerators



"What I think about the incinerator is I think it's not good for Newark because it's right in the city where everyone lives and it can affect people that have heart problems. I grew up living next to the incinerator every time I go outside I am smelling burning garbage. I would like to see a homeless shelter instead of the incinerator because there are a lot of homeless people in Newark and I feel bad."

—ANGELINA POZO, garden crew youth

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INCINERATORS HAVE NO PART IN THE ZERO-WASTE SOCIETY WE NEED

In the United States...

Incinerators not only poison the air and harm the surrounding environment and community; they also block incentives to reduce waste because their business model depends on a consistent flow of trash to operate. But there is a better solution: zero waste, or the "conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health."[38]

WHAT IS ZERO WASTE?

The goal for zero waste is to replace economic systems that create immense amounts of waste with sustainable and resilient systems without the need for waste or pollution. Zero waste strategies like recycling can save three to five times more energy than burning materials.[39] The zero-waste hierarchy sets forth the following measures to help us accomplish this goal:

- **Rethink/Redesign** how we develop and design products and services in a way that creates less waste from the beginning. One way to incentivize this is extended producer responsibility, which makes producers responsible for the entire product lifecycle, including disposal;
- **Reduce** consumption of non-biodegradable products, such as plastic, by buying reusable grocery bags or jars for fruits, vegetables, nuts, etc., and reduce food waste by incorporating food recovery and food co-op programs to redistribute "waste" items from businesses to those who need them;
- **Reuse** household products such as clothing, furniture, etc. to reduce waste;[40]
- **Recycle** all recyclable materials through a mandatory municipal recycling program instead of throwing them into the trash. If public dumpsters are available, ensure that public recycling bins are also made available;

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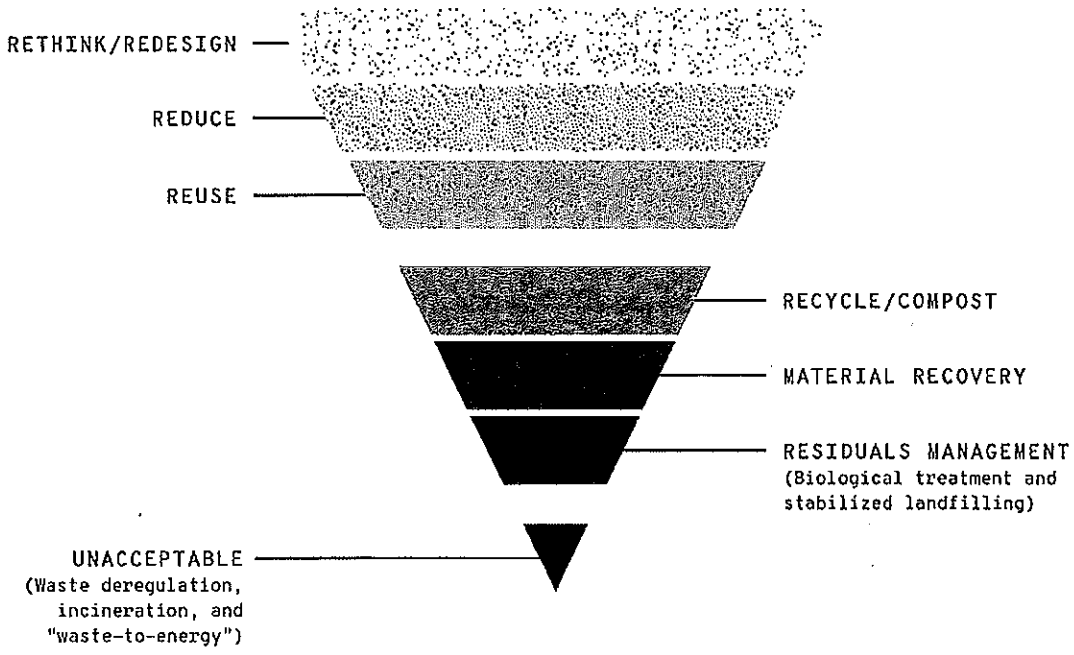
- **Compost** by putting organic materials back into the soil to provide nutrients, reduce waste and greenhouse gas emissions, and increase infiltration of rainwater;
- **Recover** materials through processes that separate used materials, such as metals, to be reintegrated into new products; and
- **Manage** residuals to place them back into the natural environment in a sustainable and non-polluting way, taking environmental and health factors into account.

Many cities have been successful in reducing waste through these zero-waste strategies. San Francisco, for example, diverts 80% of its waste from the landfill through a municipal law that requires the separate disposal of recyclables, organic waste for composting, and landfill items—the city collects 650 tons of organic waste per day for composting.[41] Baltimore has adopted a comprehensive zero-waste plan that aims to divert 90% of its waste from landfills and incineration.[42] And in New Jersey, in just two years, Jersey City's program of compost drop-off locations and food-scrap buckets has collected over 50,000 pounds of organic waste to fertilize home gardens, parks, and community gardens across the city.[43]

New York City is demonstrating how composting should be done at a local scale, e.g., within 1-5 miles of where disposed. Community composters in NYC,

The Zero Waste Hierarchy



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such as Big Reuse and Lower East Side Ecology Center, as well as micro-haulers that employ people of marginalized identities, such as BK Rot and Common Ground Compost, are providing New Yorkers with the knowledge and skills to produce and use compost locally.[44]

Studies show that zero-waste solutions are job creators: on a per-ton basis, composting creates 4 times more jobs, recycling creates 10–25 times more jobs, and material reuse can create up to 296 times more jobs than landfilling or incineration.[45] A recent study estimates that deployment of these zero-waste principles could create over 11,000 jobs in New York City by 2030.[46]

We must shift the paradigm from unjustly exporting waste to environmentally overburdened communities to instead implement local-scale zero-waste strategies that reduce the adverse effects of waste incineration. By rethinking, reducing, and reusing the products we create, we can minimize waste and successfully reintegrate resources that would otherwise be disposed of back into the environment in a healthy and managed way. We can also mitigate the significant adverse impacts on human health, equity, and the environment that arise from sending trash to incinerators.

> "We are spiritual beings having a human experience. The land that we are on is on borrowed time. We need to be reminded we are stewards of the earth and we are here to protect and nourish the land and not pollute it."
>
> –TANISHA GARNER, community leader

Down Bottom Farms community garden in Newark.

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POLICY RECOMMENDATIONS FOR NEW JERSEY

Newark children demand clean air instead of pollution from local incinerators.

- End subsidies for waste incineration, such as by removing incineration from Renewable Portfolio Standards or other programs intended to benefit clean, renewable energy instead of polluting incinerators;
- Do not permit the construction of any new incinerators or any expansion of existing incinerators;
- Require the best available continuous monitoring and control technologies for all pollutants at existing incinerators, and fully enforce all environmental laws and permit conditions that apply to incinerators;
- Ban the incineration or landfilling of organic materials and unprocessed construction and demolition (C&D) materials;
- Close and decommission all existing incineration facilities by 2030, and require incinerator companies to provide sufficient financial assurances for remediation programs;
- In accordance with community input and consent, mandate and incentivize waste reduction, composting, organics collection, and recycling programs, prioritizing incentives for overburdened communities and historically disadvantaged peoples; and
- Ensure social safety nets, health care, wage and benefits guarantees, retraining, and priority job placement for workers in transition; create new union jobs for cleanup and restoration of polluted sites; and build infrastructure for cities to transition from incineration to zero waste.

To stay in the loop about how you can help stop the burn and move New Jersey to a zero waste future, visit www.ironboundjustice.org.

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ENDNOTES

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8 *See* Letter from Ironbound Community Corporation et al. to New Jersey Dep't of Env't. Prot.ection et al. (Apr. 30, 2020), Attachment 3 (updated Sept. 28, 2020), https://earthjustice.org/sites/default/files/files/2020-04-30_icc_njeja_letter_bpu_dep.pdf.

9 Baptista & Perovich *supra* note 2 at 15.

10 *Id.* at App. E.

11 *Id.* at 34.

12 *Toxic Wastes and Race In the United States*, United Church of Christ Comm'n for Racial Just. (1987).

13 Baptista & Perovich *supra* note 2 at 13.

14 *Id.* at 14.

15 *Id.*

16 N.J. Stat. Ann. § 13:1D-158 (defining "overburdened community" as "any census block group, as determined in accordance with the most recent United States Census, in which: (1) at least 35 percent of the households qualify as low-income households; (2) at least 40 percent of the residents identify as minority or as members of a State recognized tribal community; or (3) at least 40 percent of the households have limited English proficiency." Since no pollution indicator is included in this definition, environmental justice advocates would most likely identify these as environmental justice communities, rather than overburdened communities.

17 *See* https://www.epa.gov/ejscreen.

18 *See* https://dsl.richmond.edu/socialvulnerability/map/#loc=13/40.745/-74.158&city=essex-co,-nj&tract=34013007300 (Covanta Essex); https://dsl.richmond.edu/socialvulnerability/map/#loc=13/39.91/-75.117&city=camden-nj&tract=34007611000 (Covanta Camden); https://dsl.richmond.edu/socialvulnerability/map/#loc=14/40.612/-74.268&city=union-co,-nj&tract=34039036000 (Covanta Union).

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19 *See supra* note 8 at Attachment 3.

20 *Id.*

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27 *See supra* note 2 at 19-22.

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30 *Id.* at 13, 28-29.

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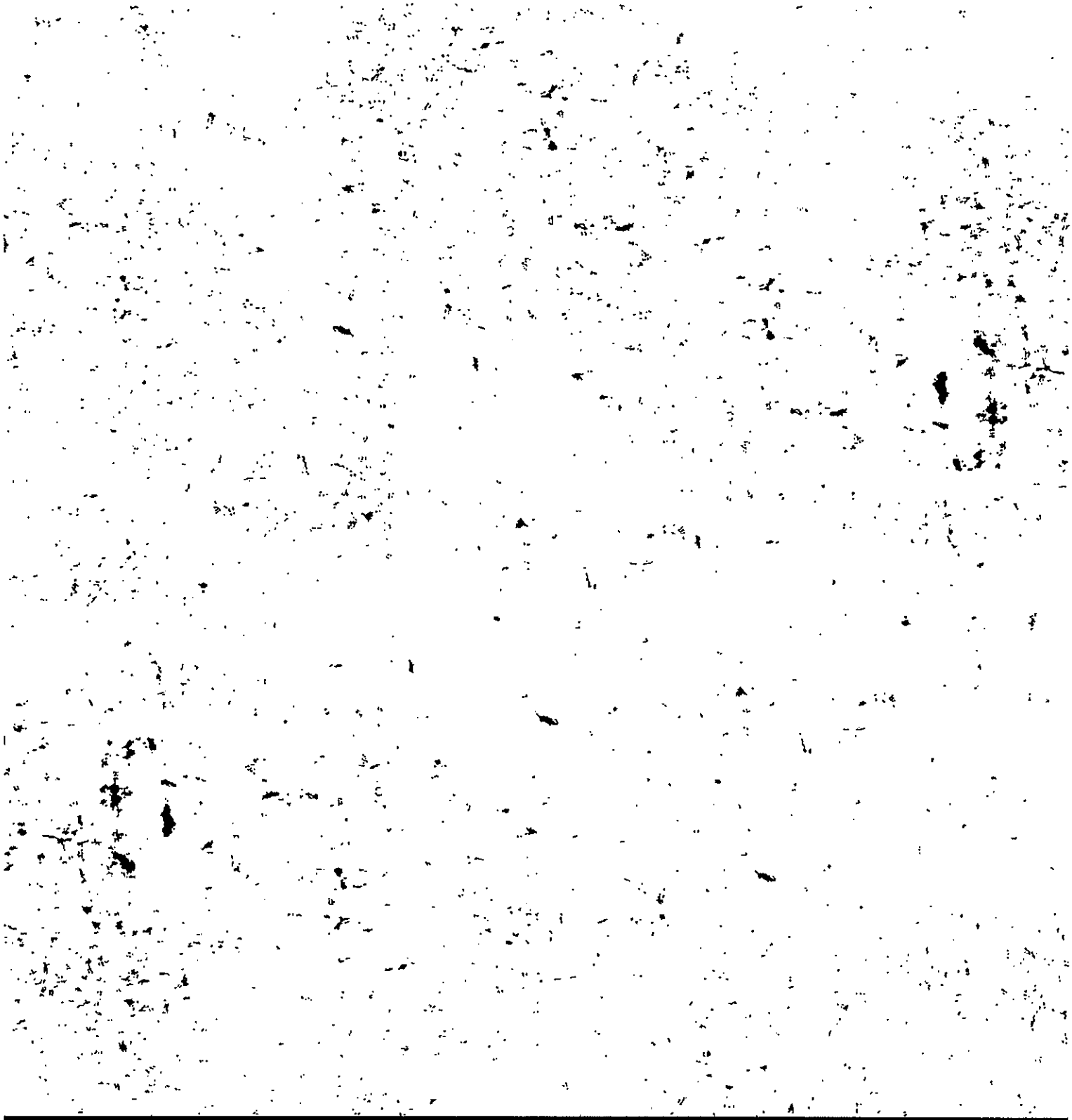

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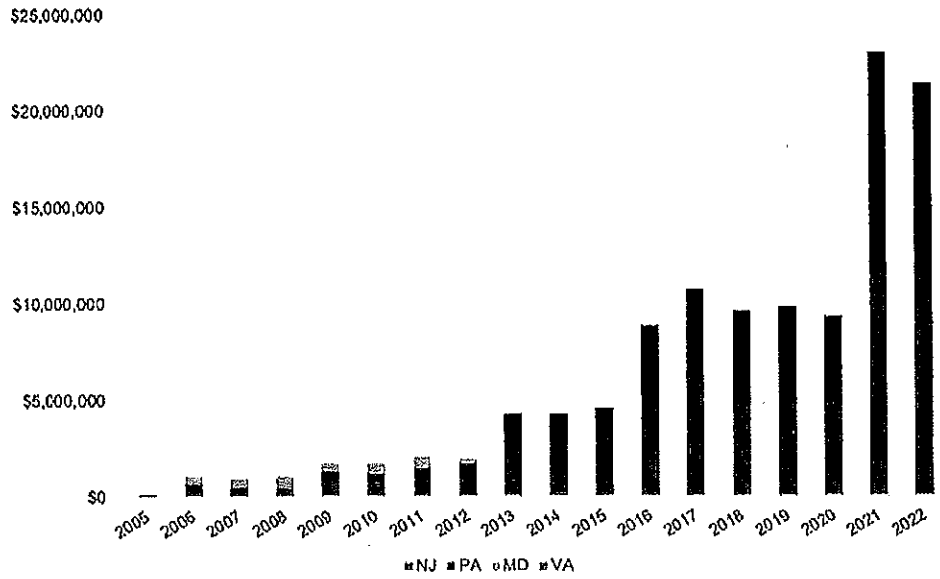
Attachment 3

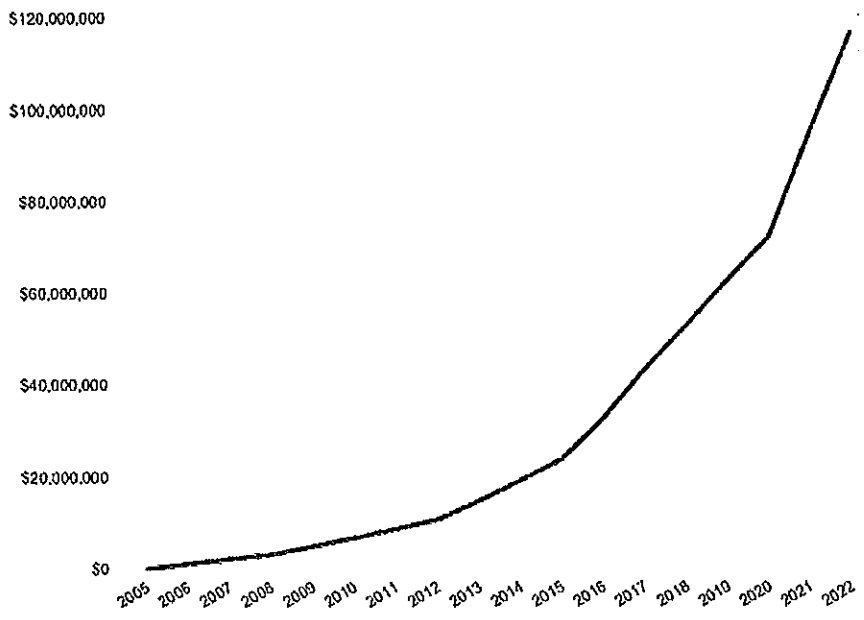
NEW JERSEY'S DIRTY SECRET

Incinerators located in New Jersey, Pennsylvania, Maryland, and Virginia have received millions of dollars in subsidies from New Jersey as part of the state's RPS program. In particular, since 2004, New Jersey incinerators have received over $60 million in subsidies, Pennsylvania incinerators have received over $50 million, and Maryland incinerators have received over $3 million. The cumulative amount that incinerators have received in subsidies from 2004 to 2022 is over $116 million. This is especially egregious given that incinerators only provide 1% of the total electrical capacity in New Jersey. Learn more about this issue in the New Jersey's Dirty Secret report.



Annual Total of NJ's RPS Subsidies to Incinerators

Cumulative Total of NJ's RPS Subsidies to Incinerators



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