

Joseph F. Accardo Jr.
Vice President Regulatory &
Deputy General Counsel

Law Department
PSEG Services Corporation
80 Park Plaza – T5, Newark, New Jersey 07102-4194
tel : 973-430-5811
email: joseph.accardojr@pseg.com



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VIA ELECTRONIC MAIL

Ms. Aida Camacho-Welch
Secretary of the Board
New Jersey Board of Public Utilities
44 South Clinton Avenue
Trenton, NJ 08625
EMP.comments@bpu.nj.gov

Re: PSEG’s Comments on the 2019 Draft Energy Master Plan

Public Service Enterprise Group Incorporated (“PSEG”) appreciates the opportunity to submit these written comments to the New Jersey Board of Public Utilities (“Board” or “BPU”) on the June 10, 2019 Draft Energy Master Plan (“EMP”).

The Draft Energy Master Plan lays out a bold vision to achieve 100 percent clean energy by 2050. This objective is aligned with what the climate science indicates we need to achieve globally to avoid the worst impacts of climate change. PSEG strongly supports this objective, and we intend to play a constructive, proactive role in helping identify and support the policy and technology changes that will need to occur if New Jersey is to achieve its clean energy goals.

To achieve these aggressive goals, however, the State should work with its electric and gas utilities on a new business model and supporting regulatory structure in which the business goals and incentives of the utilities are aligned with policy goals put forth in this plan. The 21st century utility must drive adoption of clean technologies and more efficient use of energy, so many of the recommendations within our comments will reflect this desire. The EMP should clearly reflect the need for this reformation.

PSEG has supported, and will continue to support, the seven Strategies set forth in the draft EMP. In these comments we highlight nine key elements within the Draft EMP, and recommend necessary enhancements that should be incorporated to enable success of the Energy Master Plan and to help the State meet its clean energy goals. Following these key elements are PSEG’s responses to the BPU’s 28 questions for stakeholder consideration, as set forth in the Board’s June 10, 2019 notice.

1. The EMP Should Call for the BPU to Direct Willing Utilities to Implement Energy Efficiency Programs Immediately, While Also Recommending the Removal of the Regulatory Barriers that Prevent the Expansion of Utility Energy Efficiency Programs.

PSEG applauds the Draft EMP's focus on energy efficiency and the multiple benefits it provides to the State. The time for the Board to act on energy efficiency is now. According to the 2018 American Council for an Energy-Efficient Economy ("ACEEE") Scorecard, New Jersey is currently ranked 29th in electric savings, continuing a steady decline in performance since 2006.¹ Delaying utilities' energy efficiency programs will cost customers money, cause millions of tons of avoidable carbon dioxide emissions, forego thousands of potential jobs, and conflicts with the intent of the Clean Energy Act ("CEA"). The EMP should reflect greater urgency around energy efficiency, including recommending that the BPU direct those utilities ready to implement energy efficiency programs to do so immediately.

With respect to utility-led energy efficiency programs, the Draft EMP acknowledges that electric and gas utilities are mandated by the CEA to reduce electric and gas consumption by 2% and 0.75% respectively, and that these goals must fundamentally change the State's energy efficiency landscape going forward. To achieve these targets, it is critical to establish utilities as the implementers of energy efficiency programs due to the unique advantages they hold, the success and prevalence of the utility-led model across the United States, and the CEA's mandate for the utilities' role in energy efficiency. In 2018, PSE&G submitted its Clean Energy Future – Energy Efficiency ("CEF-EE") filing, which is designed to make energy efficiency available to all customer segments (including low and moderate income customers), ensuring universal access to energy efficiency and, when combined with State-led initiatives such as improved building codes and appliance standards, capable of achieving the energy savings targets set forth in the CEA.

Utilities have several unique advantages in delivering energy efficiency programs to customers, including established customer relationships and a trusted brand, expertise administering energy efficiency programs, ability to offer on-bill repayments, and access to customer usage data to identify energy savings opportunities and monitor the impact of energy efficiency projects. PSE&G's expertise in delivering cost-effective energy efficiency to its customers is demonstrated by the 14 awards it has won since 2012. Notably in 2019, PSE&G's Hospital and Multifamily programs were named Exemplary Programs, the top category available, by the ACEEE.

Utilities generally have a strong competency in responding to the market, allowing for them to effectively partner with leading companies in the private sector. In contrast, a 2016 independent evaluation report by Energy & Resource Solutions describes policies and procedures that the Board's Office of Clean Energy ("OCE"), which itself runs energy efficiency programs, is required to follow as a state entity that inherently place "constraints on its work."² For example,

¹ ACEEE 2018 State Energy Efficiency Report Card, accessible at <https://aceee.org/research-report/u1808>

² See *Process Evaluation Study prepared for the New Jersey Clean Energy Program*, January 2016, at p. 44 - - <http://www.njcleanenergy.com/files/file/Library/NJCEP%20Process%20Evaluation%20Final%20Report%20and%20Memo%2002152017.pdf>

contract changes must go through the Department of Treasury, which “can take weeks, months, or, in some cases, years.”³ Similarly, the Department of Treasury must issue incentive checks, “which increases the amount of time it takes to pay customers.”⁴

Utility-led energy efficiency program funds can only be used for energy efficiency and, providing even greater transparency, utility program expenditures are annually reviewed for prudence by the Board. In contrast, according to the Board’s accounting, more than \$1.5 billion has been diverted from the State’s Clean Energy Fund over the past decade, and the State does not have to demonstrate the prudence of its expenditures.⁵ Utility energy efficiency filings are also governed by numerous minimum filing requirements that do not apply to the State’s programs. Despite these structural shortcomings, the Draft EMP calls for the expansion of the OCE’s programs.⁶

Utilities taking a leadership role in the implementation of energy efficiency is a proven, successful approach across the country. Eight of the top 10 states in electric savings utilize a utility-led program administration model, including recognized national leaders such as Rhode Island, Massachusetts, and California.⁷ In contrast, a report by the Regulatory Assistance Project is critical of the government-as-program-implementer model to which New Jersey currently subscribes, stating that “[g]enerally, government administration of consumer-funded energy efficiency programs has not gone as well as administration by other means.”⁸

The CEA puts the responsibility to achieve energy savings on the public utilities, and permits the Board to assess penalties against utilities if they fail to achieve those targets. With the responsibility the CEA places on the utilities must come control over the utilities’ ability to meet those targets, free from interference, limitation, confusion, or inefficiency that would be caused by competing regulated programs.

In light of the above, the EMP should clarify that utilities will play the primary role in running the energy efficiency programs in New Jersey, and those programs should commence immediately for those utilities ready to implement. The OCE can then shift its focus to important regulatory functions such as governance, oversight, auditing, and policy setting on a much wider array of more extensive utility-administered programs.

Lastly, revenue decoupling is essential to achieving the energy savings mandates of the CEA. The Draft 2019 EMP, however, fails to address it. It is no coincidence that those states that

³ *Id.* at p. 45.

⁴ *Id.*

⁵ *NJ Board of Public Utilities Response to FY 2017-2018 State Budget*, p.14 (accessible at https://www.njleg.state.nj.us/legislativepub/budget_2018/BPU_response.pdf).

⁶ *See generally* Goal 3.1.2 of the Draft EMP.

⁷ <https://aceee.org/research-report/u1808>

⁸ *RAP Report, Who Should Deliver Ratepayer-Funded Energy Efficiency*, November 2011, at pp. 23-24 (accessible at https://www4.eere.energy.gov/seeaction/system/files/documents/rap_sedano_whoshoulddeliverratepayerfundedee_2011_11_15.pdf).

have achieved the greatest energy reductions have all adopted revenue decoupling.⁹ More specifically, for electric service, the top nine states, and 17 of the top 20 states have revenue decoupling. All of the states with a comparable savings percentage to the 2% electric goal in the CEA have approved electric revenue decoupling. For gas service, eight of the top 10 states by energy efficiency savings have approved revenue decoupling, including all of the states with a comparable savings percentage to the CEA's 0.75%.¹⁰ New Jersey in fact has experience with revenue decoupling - - two of its gas utilities have a form of decoupling with their Board-approved Conservation Incentive Program. The EMP should support decoupling as a proven mechanism to promote achievement of the CEA's energy savings targets.

2. The EMP Should Further Establish the Important Role Nuclear Power Will Play in the State Meeting its Clean Energy Goals.

PSEG and the State acknowledge the important role nuclear power will play in attaining the goals of the EMP. Nuclear will be the largest source of carbon-free electric production for New Jersey for many years. As we continue to develop the roadmap for achieving New Jersey's EMP goals, the role of nuclear should be clearly established. Governor Murphy, the State legislature, and the Board are to be commended for their support of the Zero Emission Credit ("ZEC") legislation, which will help ensure the continued viability of this vital, emission-free electric generation resource. It is fair to say that without the continued existence of nuclear power, the Governor's goal of 50% clean energy by 2030 would not be attainable.

The ZEC legislation specifically establishes that the "Energy Master Plan of New Jersey . . . requires significant revisions to ensure that 100 percent of the State's electric energy needs are generated by clean energy sources by 2050, and any update to the Energy Master Plan by the State must include a focus on the expansion of renewable and zero-emission sources of energy."¹¹ The ZEC legislation recognizes the central role that nuclear generation plays in achieving the State's clean energy goals, stating that "Nuclear power generation is a critical component of the State's clean energy portfolio because nuclear power plants do not emit carbon dioxide, other greenhouse gases, or other pollutants[.]"¹² The EMP echoes this recognition by identifying the importance of nuclear generation as a major element of "one of the lowest carbon generation sectors in the U.S.," comprising 42.5 % of the State's electric output in 2018.¹³ As also stated in the EMP, "New Jersey is aggressively pursuing a carbon neutral power sector [by] supporting nuclear energy," and taking other measures.¹⁴

The ZEC law provides that "[t]he retirement of nuclear power generation will inevitably result in an immediate increase in air emissions within New Jersey due to increased reliance on

⁹ <https://aceee.org/research-report/u1808>

¹⁰ <https://www.nrdc.org/resources/gas-and-electric-decoupling>.

¹¹ N.J.S.A. 48:3-87.3a(5).

¹² N.J.S.A. 48:3-87.3a(7).

¹³ Draft EMP, p. 14.

¹⁴ *Id.* at 23.

natural gas-fired generation and coal-fired generation.”¹⁵ Confirming this finding, the Draft EMP notes that “since the closing of the Oyster Creek nuclear power plant in September 2018, New Jersey’s share of electricity from nuclear power has fallen to about 32% from its three remaining plants, *and natural gas has largely made up the difference.*”¹⁶

As pivotal and forward-looking as it is to support and develop large-scale solar and wind resources (and the necessary transmission upgrades to accommodate those changes), the obvious -- and significant -- impact of nuclear plant closure in New Jersey will be increased generation from natural gas generating capacity. Comments filed in the PSE&G ZEC tariff proceeding indicated that, if the New Jersey nuclear power plants were retired, it would take about 10 years just to recover from the deterioration in the carbon emission profile of New Jersey’s energy portfolio.¹⁷ Responsible stewardship of the environment and the satisfaction of New Jersey’s commitment to reduce emissions and combat climate change, as well as maintenance of the significant number of jobs and related direct and indirect economic benefits provided by New Jersey’s nuclear resources, require careful implementation and satisfaction of the intent of the ZEC Act.

The EMP should also provide guidance concerning certain issues presented in the ongoing stakeholder proceeding the Board is conducting in preparation for the next round of ZEC applications. First, the Board should recognize in the EMP that the “carbon emissions avoidance benefits” flowing from implementing the ZEC law at the \$0.004/kWh level is extremely cost-effective versus alternative means of emissions reduction that the State is also currently pursuing.¹⁸ Second, the Board should recognize that the financial need of New Jersey’s nuclear plants has demonstrably increased since the evaluation conducted earlier this year, because electricity prices have declined from the levels used in the ZEC applications.¹⁹

Therefore, while supporting solar for the near-term and mid-term, and wind for the mid-term and long-term, PSEG emphasizes that continued operation of New Jersey’s nuclear capacity,

¹⁵ N.J.S.A. 48:3-87.3a(9).

¹⁶ Draft EMP, p. 43 (emphasis added).

¹⁷ *I/M/O the Implementation of L. 2018, C. 16, Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plant*, BPU Dkt. No. EO18080899 and *I/M/O Public Service Electric and Gas Company’s Request for Approval of a Zero Emission Certificate Recovery Charge*, BPU Dkt. No. EO18091004, October 17, 2018 public hearing, New Brunswick, Transcript page 19, line 7 to page 20, line 7.

¹⁸ Support payments provided by New Jersey for solar generation exceed \$200/MWh and support payments for off-shore wind are at least \$48/MWh. At \$10/MWh, ZECs support payments cost about 5% as much as solar and about a quarter as much as off-shore wind for the same zero-carbon benefits. Stated somewhat differently, the \$0.004/kWh charge under the ZEC Act equates to a social cost of carbon of about \$20 per metric ton of carbon. In comparison, according to the PJM Market Monitor, in 2018, the social cost of carbon implied by the REC prices paid to solar power in New Jersey was \$439 per metric ton of carbon. Further, depending on realized energy and capacity prices, the social cost of carbon implied by the support amount that will be paid to New Jersey’s Ocean Wind offshore wind project is expected to be approximately \$120 per metric ton of carbon.

¹⁹ Currently, forward energy market prices are down by about 10% from the levels used in the ZEC filings made in December 2018. The revenue reduction resulting from this drop in energy prices translates to more than one-third of the full ZEC attribute payment. In fact, consideration of current forward energy prices would support a higher ZEC charge.

as long as those plants are capable of operating, is required if the State is to achieve its clean energy goals and obligations.

3. The State Should Exercise Caution if it Attempts to Eliminate the Use of Affordable, Abundant, and Reliable Natural Gas.

The Draft 2019 Energy Master Plan characterizes natural gas burned in state-of-the-art electric generation plants as “an important transition, or ‘bridge’ fuel that has helped wean the state off the heaviest polluting fuels, like coal”²⁰ Nevertheless, in light of the goal of 100% clean energy by 2050, the Draft EMP presumes a meaningful decrease in future natural gas consumption, specifically stating that the state must “minimize reliance on natural gas as the state transitions to a clean energy economy.”²¹ Similarly, the Draft EMP states that the Integrated Energy Plan, the modeling study being conducted by the Rocky Mountain Institute (“RMI”) to inform the EMP, will “equip the state with information necessary to evaluate the necessity or financial prudence of future gas infrastructure projects in light of a presumptive decrease in demand of natural gas [and] possible stranded assets within the next three decades.”²² There are several additional policy statements in the Draft EMP anticipating and supporting this significant change in the State’s energy profile.

PSE&G recommends a cautious approach in this area. As recognized in the Draft EMP, the transition from other fuel sources to natural gas has led to a lower emissions portfolio, while also lowering the cost of electricity. PSEG has lowered its greenhouse gas emissions in 2018 by 45% from 2005 levels, in part by building and operating clean and efficient natural gas power plants in lieu of coal-fired power plants. Natural gas is also ubiquitous in the residential sector; more than 70% of New Jersey residents rely on natural gas to heat their homes. There are significant risks to assuming New Jersey can simply phase out the use of this plentiful, cost-effective resource, ignore real near-term and mid-term supply constraints, and neglect the extensive natural gas transmission and distribution infrastructure in place.

With regard to infrastructure investment in particular, the Board should consider that significant reduction in methane emissions are being achieved by PSE&G and other New Jersey utilities through annual capital construction and the implementation of accelerated infrastructure replacement programs. Moreover, even given the State’s commitment to move toward cleaner forms of energy, it is simply poor policy to ignore the crucial role of natural gas in electricity production, home heating, and industrial process when there is no currently available, cost-effective alternative to satisfy these fundamental needs. In evaluating gas infrastructure programs in the future, the Board should carefully consider, and the EMP should support the consideration of, the supply profile affecting each utility’s customers, and evaluate each proposal on its individual merits.

²⁰ Draft EMP, p. 43.

²¹ *Id.* at p. 44.

²² *Id.* at p. 24.

4. The EMP Should Support Cost-Effective Approaches to Market-Based Solar Development, Prioritizing Environmental Benefits While Affording Fairer and Broader Access to the Benefits of Solar and Directing Subsidies To Constituents and Communities That Need Them Most.

PSEG applauds the aggressive renewable energy goals put forth in the Draft EMP. Obtaining 100% of the State’s power from clean sources puts New Jersey at the forefront of the battle against climate change. PSE&G is proud of its efforts over the past decade in support of this goal, having built or financed over 300 MW of solar energy in New Jersey. PSE&G has reclaimed over 200 acres of landfills and brownfields in the State to site 65 MW of solar facilities, installed solar on inner city schools, and already begun to pilot innovative ways to integrate solar energy with battery storage to provide for increased resiliency at critical locations.

The State’s utilities have an important role to play in the continued success of the solar market in New Jersey, with their focus on customer and market segments where clean energy investments are lagging, and their ability to provide strong support for environmental justice concerns. For example, utilities can effectively reach public entity customers that lack the financial strength and tax appetite to invest in solar energy. We believe there is additional opportunity for utility participation in public and municipal solar. Utilities can very effectively deliver solar to the landfill and brownfield sector, where thousands of acres of land still sit dormant. PSE&G is already a knowledgeable developer of landfill/brownfield solar in the State and can continue to leverage this expertise to the benefit of all customers. Utilities can also target Community Solar in the urban low and moderate income sector, where it can reach those customers that have been left behind in the solar market’s rapid expansion over the past decade.

But to accomplish all of this, PSE&G needs a long term policy partnership with the State to deploy solar, whether it be through targeting public entities under utility solar programs to help offset those entities’ energy costs and benefiting taxpayers; targeted Community Solar projects that reach urban low and moderate income customers; an expansion of PSE&G’s successful Solar 4 All® Program; or some combination of these approaches. Regardless, targeted utility investment in solar energy can help the State achieve several of its clean energy and environmental justice goals, and should be part of the overall evolution of the solar market in New Jersey.

PSEG has also been an active participant in the BPU’s solar market stakeholder process and has provided substantial input into the proceeding. The future of the solar market should be based on a competitive procurement process that allows for developers and utilities to participate in the continuation of the State’s solar market. We recommend that the EMP lay out the long term plan for the structure of the solar market in order to provide guidance to the BPU in its stakeholder proceedings.

5. The Draft EMP Appropriately Recognizes the Benefits of Advanced Metering Infrastructure, and the State Should Continue its Path Towards its Deployment.

PSE&G applauds the Draft 2019 EMP’s acknowledgement of the benefits of Advanced Metering Infrastructure (“AMI”) and for suggesting that the Board “consider issuing

recommendations to utilities for accelerated AMI installation in a strategic, coordinated, and efficient manner so the state can begin realizing the benefits of a connected grid while also containing costs.”²³ As the draft EMP notes, AMI is a “foundational component of a modernized distribution grid” and a “prerequisite of many additional clean energy objectives.”²⁴ AMI also will enable the piloting and implementation of modified rate designs to encourage and support many of the State’s energy goals such as electric vehicle adoption and energy efficiency. Other benefits of AMI include, but are not limited to: (1) promptly and efficiently providing customers with granular information regarding their energy usage, which can reduce their utility bills and save them money; (2) enhancing outage response by allowing utilities to check the status of individual smart meters, thereby reducing the impact of nested or isolated outages, and improving estimated service restoration times provided to customers; (3) the near elimination of estimated billing; (4) reducing unnecessary utility truck rolls, resulting in a decrease in harmful emissions; (5) detecting unsafe conditions at customers’ homes; and (6) reducing utility bill write-offs and energy theft.

The Draft EMP sets the stage for the widespread implementation of AMI as contemplated in PSE&G’s Clean Energy Future - Energy Cloud Program, the cornerstone of which is the deployment of AMI throughout PSE&G’s electric service territory. PSE&G looks forward to the widespread deployment of AMI in New Jersey, so that customers and utilities in the State can reap the benefits of the technology that many around the country have been realizing for some time. In fact, New Jersey is behind nearly the entire country when it comes to AMI penetration and the vast benefits the technology provides, and the draft EMP is another step by the BPU in the right direction with respect to this important piece of the modern grid.

6. The EMP Should Recognize the Importance of Electric Transmission as the State Seeks to Modernize the Grid to Meet its Clean Energy Goals.

Recently, PJM and the Edison Electric Institute (“EEI”) separately issued timely, comprehensive whitepapers focused on the criticality and value of transmission.²⁵ EEI’s findings included reference to: (1) successfully meeting targeted load growth in Jersey City and Newark; (2) the significance of transmission to managing the interconnection of renewables; and (3) the importance of a robust transmission system in helping prevent supply disruptions by enhancing access to varied generation sources and fostering system flexibility in the face of a changing fuel mix, power plant retirements or unplanned outages. According to the PJM report, the 84,200 miles of high-voltage transmission throughout the PJM system provide benefits that go beyond simply delivering power, among them: (1) ensuring reliability between regions during periods of extreme weather and in the face of equipment failures; (2) keeping costs low – transmission enhancements in PJM are expected to reduce costs to customers by more than \$280 million per year by

²³ *Id.* at p. 78.

²⁴ *Id.*

²⁵ For EEI’s whitepaper, *see*:

<https://www.eei.org/issuesandpolicy/transmission/Documents/2018%20Smarter%20Energy%20Infrastructure%20The%20Critical%20Role%20and%20Value%20of%20Electric%20Transmission.pdf>

For the PJM whitepaper, *see*: <https://www.pjm.com/-/media/library/reports-notice/special-reports/2019/the-benefits-of-the-pjm-transmission-system.pdf>

alleviating congestion, or transmission constraints; and (3) supporting public policy. PJM found that investment in the regional transmission system continues to enable a generation shift from coal to natural gas-fired and utility-scale, renewable-powered generation, helping reduce carbon emissions by 30% over the past 10 years.

PSE&G's transmission efforts have been a vital component of the success stories chronicled in the EEI and PJM reports. The grid upgrades PSE&G has made over the past 10 years have significantly lowered transmission congestion costs for customers and dramatically reduced transmission system outages with overall PSE&G utility bills 30% lower than they were in 2008. Annual congestion costs in the PSE&G zone in 2008 were approximately \$450 million. Today, those costs are nearly zero. Moreover, a new economic analysis by Concentric Energy Advisors concluded utilities like PSE&G have been cost disciplined when making investments in the nation's power grid.²⁶ Our goal remains to make the grid more reliable and efficient.

The Draft EMP sets some very ambitious goals -- 3,500 MW of offshore wind generation by 2030, electrification of the transportation sector, increased integration of distributed energy resources, and 100% clean energy by 2050. These goals cannot be achieved without a state-of-the-art electric transmission system. Thus, the need for electric transmission investments and upgrades has never been greater, as the Draft 2019 appropriately recognizes.²⁷

A recent NREL assessment indicated that the output of solar panels installed on every single appropriate building across the country would meet only about 40% of the current electricity demand.²⁸ Recognizing this assessment, a realistic build-out of distributed solar PV will at most displace a relatively modest portion of the existing generation resources. Sources of growing electric demand, such as electrification of the transportation sector, would then need to primarily be met with utility-scale generation resources located miles from load centers. In addition, local DERs -- like distributed solar PV -- will still rely indirectly on the high-voltage transmission system for backup due to their variable nature and the mismatch between the timing of their generation and electricity demand.²⁹ For all of these reasons, the EMP should recognize the criticality of electric transmission.

7. The Draft EMP Appropriately Recognizes the Need to Modernize the Grid and Utility Infrastructure if the State is to Meet its Clean Energy Goals.

The Draft EMP contains numerous commendable goals and recommendations to modernize the grid and utility infrastructure, recognizing that distribution system upgrades will be required to handle, for example, increased electrification and integration of DERs. PSE&G agrees with this focus on modernization, and has made this a key element of its recently-approved Energy

²⁶ Available here: https://ceadvisors.com/wp-content/uploads/2019/06/CEA_Order1000report_final.pdf

²⁷ See Draft EMP, p. 76 (noting "future needs to increase transmission as the state modernizes the grid. . .").

²⁸ Gagnon, et al., *Rooftop Solar Photovoltaic Technical Potential in the United States: A Detailed Assessment*, NREL/TP-6A20-65298, January 2016, Table ES-1.

²⁹ Frayer, et al., *The Truth about the Need for Electric Transmission Investment: Sixteen Myths Debunked*, Prepared for WIRES Group, September 2017, pp. 18-19. Available at: <http://wiresgroup.com/new/wireslibrary/wires-reports/>

Strong II program, which continues the modernization and storm resiliency work that PSE&G began in earnest under the initial Energy Strong program. In Energy Strong II, PSE&G will make additional investments in grid modernization to improve storm response, maintain communication and situational awareness, and support the evolving utility of the future. The Advanced Distribution Management System and Communication Network that are part of the approved program will provide the tools for dynamic visualization, monitoring, and control of the electric distribution system. With regard to communication in particular, in light of changing technology, existing systems will not meet the future needs of the grid, where the importance of secure, high speed, and reliable communications to a significantly higher number of devices will be required. For both improved communication in storm events and to support the future grid with DERs, a significantly more robust, secure, and efficient communication system is needed to control devices on circuits and ensure service reliability and quality (*i.e.*, voltage) to customers. With the approval of the ES II program, PSE&G is pleased to partner with the Board to achieve these ends.

With respect to ratemaking, the draft EMP recognizes that building the utility of the future involves “modifying current rate design and ratemaking processes to empower customers’ energy management and self-generation (especially as EVs are increasingly adopted), align utility incentives with state goals, and facilitate long-term planning and investment strategies.”³⁰ However, for the State to fully align utility business incentives and goals with the State’s clean energy goals, changes to utility rate design are not enough, and a more integrated approach is needed. The State must put policies in place that allow, and encourage, utilities to invest in new clean technologies like energy storage; it must allow for utilities to build and operate infrastructure to support electric vehicles; and it must sever the relationship between load growth and earnings growth. These changes are needed to transform New Jersey’s utilities into 21st century utilities that will drive adoption of all types of clean energy technologies and solutions.

The Draft EMP calls for the Board to instruct gas utilities to prioritize the replacement of pipelines leaking methane.³¹ PSE&G agrees that this is an important priority, and the Company’s aggressive replacement of its vintage leak prone pipe targets cast iron and unprotected steel infrastructure, as these materials are recognized as the highest contributors to methane emissions within the EPA’s reporting metrics for gas mains. Moreover, in its Gas System Modernization Program (“GSMP”) and the ongoing GSMP II, PSE&G has made use of methane leak mapping and consideration of methane emission flow volume (*i.e.*, emission size) to help prioritize this replacement work, in an attempt to reduce the amount of natural gas lost from emissions and reduce the environmental impacts of those emissions. PSE&G supports the use of methane mapping technology as a consideration in the prioritization of gas main replacement projects and will continue to follow the development of the technology.

Finally, as noted above, PSEG has lowered its GHG emissions in 2018 by 45% from 2005 levels. PSEG achieved these reductions by, among other things, building and operating clean, efficient natural gas power plants in lieu of coal-fired power plants, as well as the GSMP efforts to replace aging, leak prone gas distribution lines with modern materials. It is through these efforts,

³⁰ Draft EMP, p. 11.

³¹ *Id.*

and the additional infrastructure investment contemplated in the Draft EMP, that the State can reach its clean energy goals.

8. The EMP Should Recognize the Pivotal Role the Electric Utilities Can Play in Electrifying the Transportation Sector.

The Draft 2019 EMP contains numerous commendable goals and recommendations to accelerate the pace of EV purchases in the State. However, the policy goals and implementation roadmap referenced in the EMP should include a partnership with the State's electric utilities. This partnership is essential to the long term success of transitioning the transportation sector to electricity. For example, in 2017, the density of public chargers relative to the population in New Jersey was the lowest of the states that participate in California's zero-emission vehicle program ("ZEV Program"). This should not be surprising because New Jersey currently lacks a cohesive electric transportation policy that leverages its electric utilities. The leading states in the ZEV Program, including Vermont, California, and Oregon, built their success by leveraging utility programs that offer rebates and installation of EV charging equipment in residential, multifamily, workplace, and public locations.

Electric utilities play an integral role in accelerating electric vehicle deployment in a manner that provides customer value and efficient integration into the energy grid. Utilities, with their ubiquitous access to all customers, are well suited to expand smart charging infrastructure across multiple transportation modes and sectors: *i.e.*, residential, multifamily, workplace, fleets, and public DC fast-charging. Additionally, utilities have the ability to accelerate innovation by providing solutions for more specialized vehicles, including school buses, transit vehicles, and other medium- and heavy-duty vehicles in locations such as New Jersey's ports and airports.

Electric utilities are also essential for integrating electric transportation load in a manner that maximizes the environmental benefits of electric charging while ensuring a more efficient utilization of the grid. Smart charging at the retail level combined with advanced grid analytics can ensure charging minimizes greenhouse gas emissions and maintains the reliability of the grid.

Utilities are also well positioned to help increase customer awareness about the benefits of electric vehicles, not just for residential customers, but for all customer classes. Utilities have broad access to residential customers through social media, community events, billing relationships, and other communication channels. Utilities also have deep relationships with commercial businesses, local community leaders, and other institutions to inform and advance the benefits of electric vehicles.

All of these benefits are brought to bear in PSE&G's Clean Energy Future - Electric Vehicle and Energy Storage ("CEF-EVES") filing, through which PSE&G is prepared to jumpstart the electric vehicle industry in New Jersey in order for the State to meet its clean transportation and clean energy objectives, including those set forth in the draft EMP.

The CEF-EVES filing looks to deploy smart charging for residential customers and business customers for workplace charging, fleet charging, and multifamily residences. The EVES program will also install DC fast charging stations throughout PSE&G's service territory, and

provide incentives for niche markets such as school buses and other non-standard medium and heavy duty vehicles. The CEF-EVES filing also has targeted funding to provide education and outreach to all customers to increase awareness of the benefits of electric vehicles. The Draft EMP should recognize the important role the EDCs can play in electrifying the transportation sector.

9. The EMP Should Identify the Advantages of Utility-Operated Energy Storage and Recommend its Deployment.

As the draft EMP notes, targeted deployment of energy storage can provide for increased hosting of solar, can increase resiliency for critical facilities, and can assist in bill management for commercial facilities. It is also an essential element of the modern utility grid. All applications for storage should be considered if the State is to meet the storage targets set forth in the CEA, and to address both grid-connected and behind-the-meter installations. In particular, many larger, distribution-related issues can be solved more quickly, efficiently, and securely through utility-managed deployments of storage solutions than through decentralized deployments.

PSE&G's CEF-EVES filing contains a plan for deployment of 35 MW of energy storage, targeting several use cases, contributing to the CEA goals of installing 600 MW of storage by 2021 and 2,000 MW by 2030. The filing seeks to deploy battery storage for utility applications such as solar smoothing on distribution circuits with solar to provide more consistent voltage levels, the deferral of distribution plant investment, and as a portable, temporary asset during substation construction or maintenance outages to maintain reliability. The filing also seeks to deploy battery storage in customer applications such as peak reduction for public facilities and as part of an overall customer microgrid deployed by PSE&G. The Draft EMP should recognize the benefits of utility-deployed energy storage, including its ability to help the State reach its clean energy goals and make the electric grid more reliable.

Once again, PSEG thanks for the Board for the ability to provide these written comments, and it looks forward to continuing to partner with the Board, the stakeholders, and the State as New Jersey looks to transition to 100 percent clean energy.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Joseph F. Accardo Jr.", written in a cursive style.

Joseph F. Accardo Jr.

Responses to the BPU's Stakeholder Questions

Strategy 1: Reduce Energy Consumption and Emissions from the Transportation Sector

- 1) In considering the policy mechanisms suggested in Strategy 1, how should the state seek to implement the policies to reduce transportation-related emissions? What policy mechanisms have we missed?

With transportation emissions representing over 50% of the greenhouse gas emissions in New Jersey, the State must take aggressive action to achieve its policy goals, and partnership with the utilities will be a critical success factor. Specifically, the State should seek to work in partnership with its electric utilities to deploy the EV charging infrastructure needed to ensure all customers have access to EV charging stations. The State's electric utilities can deploy charging infrastructure for all customer segments and geographies.

Utility-run programs are key to addressing critical barriers in the EV market such as lack of consumer awareness, higher upfront cost of electric vehicles, gaps in public charging coverage, and range anxiety (*i.e.*, fear of running out of charge). Furthermore, increased knowledge will be gained from the deployment of two-way communication "smart chargers" that will transmit data to a platform that is accessible to utilities. This technology investment will provide data to help optimize electric distribution system planning and operation, and support improvements to rate design to better align rates with cost causation.

As discussed in Section 8 above, PSE&G's CEF-EVES filing proposes four sub-programs targeted to various customer segments and charging equipment types. The CEF-EVES filing outlines a range of programs that would lead to a significant increase in the deployment of EV charging infrastructure throughout PSE&G's territory. A build-out of charging infrastructure is essential to eliminating range anxiety among potential EV buyers. This, in turn, would lead to an increase in customer adoption of EVs in New Jersey.

- 2) The state seeks to "lead by example" in the electrification of its fleet. What case studies, cities, states, etc. should New Jersey look to and learn from as it rolls out clean light-duty vehicles and buses?

The State should look to the policies implemented by the other states that have committed to the Zero Emissions Vehicle ("ZEV") program; specifically, California, Connecticut, Maine, Maryland, Massachusetts, New York, Oregon, Rhode Island, and Vermont.

As an example, California, which now has one of the highest penetrations of EVs in the nation, leveraged its electric utilities. In 2014, the California Public Utility Commission overturned its 2011 prohibition on electric utility-owned EV charging infrastructure. California regulators have now established utility EV charging

infrastructure investment programs to accelerate the pace of EV acceptance in the State. Programs such as this, along with other incentives to encourage customer purchase of the vehicles, together can put New Jersey on a path toward national leadership in EV acceptance.

Oregon and Vermont are also leaders in EV public charging availability and warrant consideration. Like California, these states have leaned heavily on the role of the electric public utilities to support implementation of their programs.

- 3) Over what timeline should the state seek to rollover its light-duty (passenger) fleet to EV? Over what timeline should the state rollover its bus fleet? Please also consider incremental milestones.

The rollover of the State's entire light duty and bus fleets will take time, but it can establish aggressive short term targets with a focus on deployment into those geographic areas that will provide the greatest benefit to residents, particularly those areas that suffer the most from air quality issues. Urban bus routes and in-city light duty vehicles should be targeted first.

PSE&G and the other electric utilities can work in partnership with the State to provide and maintain the charging stations, similar to how utilities provide and maintain the transformer that supplies the chargers. Standardization across New Jersey's fleets would be beneficial in the future.

- 4) How can the state work with the private sector to increase publicly-accessible EV charging infrastructure?

PSE&G's CEF-EVES filing suggests a mixture of private and utility ownership of EV charging infrastructure, depending on the application and the specific level of private-sector interest. All options should be considered, so long as they are technology neutral and are designed to obtain the broadest possible deployment of EV charging infrastructure across the State.

Competitive procurements for charging, vehicles, and related services will help ensure robust solutions and grow the green economy, but utilities will also play a key role in ensuring fairness in public accessibility of EV charging.

- 5) How can the state work with the private sector to advance the technology for medium- and heavy-duty vehicles and incentivize private sector adoption of alternative fuel vehicles?

PSE&G's proposed CEF-EV program would provide incentives towards electric school buses and EV charging infrastructure that will service school districts in the PSE&G territory, as well as hold an open solicitation process to fund high-impact, customized electrification projects for customers with non-standard vehicle

electrification needs, including medium- and heavy-duty vehicles. To this end, PSE&G is already exploring opportunities at the Port of Newark with interested companies.

- 6) What policy mechanisms should the state develop to reduce greenhouse gas emissions at its ports?

The State should look to other states for best practices in policy mechanisms to reduce emissions at its ports. California, as well as other states including New York, has developed various tools to reduce port emissions. PSE&G is ready to work with the State and port operators to deploy infrastructure to support these initiatives.

As noted earlier, the CEF-EVES filing’s Vehicle Innovation subprogram would help reduce all emissions associated with medium- and heavy-duty vehicles at the State’s ports and surrounding areas. By promoting the electrification of medium and heavy duty vehicles, including school buses, the Vehicle Innovation subprogram will help to improve air quality by reducing diesel emissions in New Jersey. Diesel exhaust exposure is linked to numerous serious negative health effects, including asthma, respiratory problems, lung cancer, and premature mortality.

Strategy 2: Accelerate Deployment of Renewable Energy and Distributed Energy Resources

- 7) New Jersey is currently targeting the installation of 3,500 MW of offshore wind generation by 2030, but there is likely room for much more growth. Can New Jersey achieve more? Why or why not, and if so, how much is feasible? What concerns and barriers must we address in developing this resource?

Offshore wind in New Jersey, at any level, brings with it a range of opportunities and challenges. In particular, one challenge to realizing the deployment of New Jersey’s 3,500 MW goal will be transmission constraints. The grid along the coastline is relatively weak, and preliminary feasibility studies recently released by PJM demonstrate that substantial upgrades will likely be needed to accommodate offshore wind at scale. The State should work collaboratively with PJM and the state’s transmission owners to consider how offshore wind can be integrated into the existing transmission system most efficiently.

Another significant challenge will be the overall cost of offshore wind and its impact on customers’ bills. While there have been significant reductions in the cost of offshore wind technology over the past decade, it still requires incentives to bring to market, and unlike solar energy that can be built at smaller scale, offshore wind must be built at utility scale to gain cost efficiencies. Segmenting the procurements over a span of years can help the Board gauge the impact of the technology on customers and allow for adjustments over time to help manage the costs.

- 8) How should New Jersey address the solar and NJ Class I cost cap established in the Clean Energy Act?

The Board can most effectively manage the Class I cost cap by effective management of the legacy SREC program, and more specifically, implementing the termination of legacy SREC program consistent with the draft rule the BPU recently put forward for review. As PSEG's prior comments on legacy solar program reflect, the Company is generally in agreement with the draft rule, and applauds the Board for taking this step.

The next step to ensuring that the State stays within the cost cap is to effectively manage the Solar Transition program, and specifically, ensuring the Alternate Compliance Price for this program is set at a level that ensures the cost of the transition program stays within a reasonable range. PSEG is engaged in this stakeholder process, and will be providing the Board with a separate set of recommendations in that matter at the appropriate time.

- 9) Does the allowance in the current RPS on the use of unbundled Renewable Energy Certificates (RECs) interfere with state efforts to incentivize in-state renewable energy power generation?

No, the current program does not interfere with the State's efforts to incentivize in-state renewable generation. The State effectively implemented the Clean Energy Act's provisions regarding offshore wind, and has continued to be a national leader with respect to the installation of solar energy.

- 10) Which policy mechanisms do you recommend the state implement to lower the cost of capital for in-state renewable energy power generation?

Given their stability and lower cost of capital, the State should continue allowing utilities to develop, own, and operate renewable energy facilities in New Jersey. As PSEG's comments in Section 4 above indicate, there are several sectors and market segments in which utility participation, with its low cost of capital, can contribute to the State's solar goals.

- 11) What policy, legislative, or regulatory mechanisms can New Jersey develop to ensure that it can most cost-effectively pursue a 100% carbon neutral power sector?

The State has already put in place some of the mechanisms necessary to achieve its aggressive clean energy goal. PSEG recommends that the State maintain its support for these mechanisms. Among them are the following:

- **ZEC Act: Nuclear power is important to ensure clean base load generation. The ZEC law passed by the Legislature and signed by**

Governor Murphy establishes a clear method to ensure that the State will continue to benefit from this most important source of clean energy for years to come.

- **Infrastructure Improvement Program (IIP)**: The BPU's adoption in 2018 of the IIP regulations has, and will continue to, encourage the capital investments needed to support the future clean energy economy of New Jersey.
- **Offshore Wind**: The OREC mechanism put in place by the BPU will help ensure the financability of offshore wind facilities and allow the market to develop in New Jersey.
- **Utility Solar**: The BPU should continue to develop a policy partnership with the State's public utilities to deploy solar, through targeting public entities under utility solar programs to help offset those entities' energy costs and benefiting taxpayers, targeted Community Solar projects that reach urban low and moderate income customers; and an expansion of utility development of solar on landfills and brownfields.

Beyond these mechanisms that are already in place, a fundamental tool is the revision of the utility business model so that the utilities' success is aligned with the State's goal. Utilities have a central role to play in renewable energy, energy efficiency, electric vehicles, energy storage, and many other areas that impact the ability of the State to achieve its goal. Success within all of these areas will be dependent on this fundamental change.

As an initial step in this direction, PSE&G recommends that the State and BPU move forward with all aspects of its Clean Energy Future (CEF) filings. The CEF filings provide the important elements on the pathway for a carbon neutral power sector, with important initiatives such as:

- **Advance metering infrastructure, so that the utilities and customers have real time information on energy consumption at the retail meter, which leads to better integration of distributed energy resources, demand response, and energy efficiency;**
- **Aggressive deployment of energy efficiency to reduce customer usage and peak loads;**

- **Aggressive deployment of electric vehicle charging infrastructure to transition the transportation sector to electric power and smart management of that infrastructure;**
- **Energy storage deployment to allow for increased deployment of intermittent renewable energy resources and to better manage customer usage patterns; and**
- **Pilot programs such as non-wire solutions, non-pipes solutions, and advanced energy technology to delay and reduce the need for additional infrastructure.**

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

12) New Jersey is currently targeting annual energy efficiency gains of 2% in the electricity sector and 0.75% in the gas sector. Do you recommend that New Jersey be more aggressive in approaching its energy efficiency goals? Why or why not, how much annually is feasible, and how long of a ramp up period is needed?

The recently completed Optimal market potential study indicated that further savings may be achievable, but PSE&G would recommend that a more thorough study be undertaken, with meaningful input from the utilities, to gain additional insight into the savings that can be achieved. Primary research on New Jersey-specific demographics, baseline conditions, load growth, and other factors will provide a more accurate assessment of the potential for cost-effective energy efficiency savings in the State.

The Optimal report targets 2.15% electric savings and 1.1% gas savings by year five, exceeding the requirements of the CEA by 7.5% and 46.7% respectively. According to the ACEEE 2018 State Energy Efficiency Scorecard, these savings levels were only achieved by three states on the electric side -- Vermont, Rhode Island, and Massachusetts -- and only Minnesota achieved 1.1% gas savings. When setting the performance incentives and penalties associated with cost-effectively achieving the final savings targets, the relative higher targets versus other states should be taken into account. Furthermore, no state is achieving both 2.15% electric savings and 1.1% gas savings. For these reasons, PSE&G recommends that, at this time, the savings targets remain as set forth in the CEA.

One opportunity for savings that has not yet been broadly implemented in the state is the deployment of AMI, providing customers with real-time energy usage and a greater ability to reduce their utility bills. PSE&G's Clean Energy Future – Energy Cloud filing sets forth a roadmap for deployment of electric AMI throughout its service territory.

- 13) What are the strengths and weaknesses of the utility-run energy efficiency programs, third-party supplier-run energy efficiency programs, and state-run programs that NJBPU should consider?

See Section 1 above for several practical and meaningful advantages of utility-run energy efficiency programs versus other programs.

- 14) How can the state ensure equitable access to and benefit from energy efficiency programs for all residents?

To ensure uniform access, energy efficiency programs must be designed to eliminate or reduce large upfront investments by homeowners, such as by providing for utility on-bill repayment options. Utilities are uniquely positioned to reach all customer segments, given the numerous channels by which they can communicate with customers regarding energy efficiency (e.g., monthly bills, call centers, walk-in customer service centers, social media) and their name brand recognition. In its CEF-EE filing, PSE&G has proposed a variety of programs with elements supporting underserved and disadvantaged populations. The CEF-EE filing provides a roadmap for how all citizens of New Jersey can benefit from energy efficiency programs.

- 15) Which states or cities have successfully implemented stronger-than-average building and energy codes? How should New Jersey seek to strengthen its building and energy codes, and over what timeline?

According to the 2018 ACEEE State Energy Efficiency Scorecard, the top four states when it comes to building codes are California, Connecticut, Pennsylvania and Texas. New Jersey should adopt the most efficient national energy codes into its existing building codes structure for new construction, and give particular attention to affordable housing construction to ensure equitable access to energy efficiency for low and moderate income customers.

Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

- 16) What policy, legislative, or regulatory mechanisms can New Jersey develop to successfully transition the building industry to develop net zero carbon construction? Over what timeline should the building industry seek to make this transition? What incremental goals and milestones should it set?

As a necessary first step, the Board should look to maximize energy conservation from all buildings through an aggressive energy efficiency portfolio, such as PSE&G's proposed CEF-EE program. As noted in the previous response, the State should also adopt the most efficient national energy codes. Lastly, the State should support the incorporation of green infrastructure, such as green roofs, into building designs to enhance energy efficiency and capture greenhouse gas emissions.

- 17) What barriers exist that could hinder successful implementation of new net zero carbon construction?

The incremental upfront cost has traditionally been a barrier to implementation of any type of advanced building technology, which is the reason for incentive programs to overcome this barrier. Lack of understanding of the life cycle benefits is also a barrier, which can be overcome through outreach and education programs. Utilities are well placed to implement these programs as they are directly involved with all new construction projects and have ongoing relationships with developers.

- 18) What policy, legislative, or regulatory mechanisms can New Jersey develop to incentivize and accelerate the transition from oil, propane, and natural gas heating systems to electrified heating systems? Please consider appropriate mechanisms for residential, commercial and industrial buildings. Over what timeline is this achievable? Please also consider incremental milestones for the different fuels and technologies.

As an initial matter, costs should be scrutinized when considering such a transition. A 2018 AGA study showed that residential electrification had a much higher cost per metric ton of CO₂ reduction than alternatives such as transportation fuel efficiency measures, renewable natural gas, and natural gas demand side management.³²

To incentivize residential, commercial, and industrial buildings to utilize electric heating, a rate credit would have to be considered. Electric resistance heating is twice as expensive compared to gas heating; thus, a change in rate design may be required.

HVAC incentive programs that include heat pump technologies can further assist in accelerating this transition. PSE&G's CEF-EE filing includes incentives for heat pump space and water heating equipment. To supplement these types of programs, the State should consider funding emerging technology pilot programs that seek to advance heat pump and other related technologies that still require further development to achieve commercial and technical availability, cost competitive pricing, and market acceptance.

Strategy 5: Modernize the Grid and Utility Infrastructure

- 19) How should New Jersey approach the modernization of the current utility model (e.g., decoupling or performance incentives, rate design, smart grid technology, demand response)?

See Section 1 above regarding decoupling and Section 5 regarding AMI. Changes in

³² "Implications of Policy-Driven Residential Electrification". An American Gas Association Study prepared by ICF.

https://www.aga.org/globalassets/research--insights/reports/AGA_Study_On_Residential_Electrification

rate design and cost recovery policies will also need to be evaluated in order to align with State policy goals for Distributed Energy Resources, demand response, EVs, and other advanced smart grid technologies.

- 20) How should NJBPU consider planning and paying for upgrades to the electricity distribution system, including Distributed Energy Resource (DER) connections; EV charging; and utilities' recuperation of cost?

Using utility capital to fund energy efficiency allows for intergenerational equity, *i.e.*, the period of cost recovery for an investment corresponds with the period over which customers receive the benefits of the investment. The ability to amortize costs reduces bill impacts, allowing for a ramping up of investment in DERs and EV charging without rate shock to customers. Furthermore, reducing the Societal Benefits Charge – EE and Renewable Energy component that is passed through to customers in the same year it is incurred in connection with the New Jersey Clean Energy Program may lead to rate decreases. For energy efficiency, utilities should continue to recover costs in the manner set forth in N.J.S.A. 48:3-98.1, and decoupling should be adopted to eliminate the utility disincentive to invest in energy efficiency.

- 21) What regulations and legislation do other states use for evaluating transmission upgrades that New Jersey should consider modeling?

New Jersey already has in place comparable regulations and legislation as other states use for evaluating transmission upgrades and participating in the RTO process generally. Significantly, the primary regulatory responsibility for the siting of transmission lines resides with individual states and, in New Jersey, is statutorily well-established in N.J.S.A. 40:55D-19. The Board should continue its recent increased engagement in PJM processes and initiatives as well as OPSI. Additionally, PSE&G continues to welcome any and all opportunities to meet with Board Staff both individually as well as with the other EDCs to discuss the critical role transmission has and will continue to play in conjunction with the objectives of the EMP.

In addition to continuing to increase its RTO engagement, more frequent meetings between PSE&G and Board Staff would likely greatly assist the Board's evaluation and involvement in the regional transmission planning processes and be beneficial in assisting with understanding: (1) asset condition challenges; (2) storm hardening needs; (3) how public policy goals set out in the Draft EMP and elsewhere, as well as those in surrounding states, are being implemented through the transmission planning process; and (4) how issues such as solar, energy efficiency, EVs, the smart grid, offshore wind, and energy storage are being considered in the PJM process.

- 22) What best practices should New Jersey consider and which pitfalls should the state avoid regarding data ownership and privacy as it pertains to Advanced Metering Infrastructure?

After the deployment of AMI in the state, customers should be able to access their energy data through services utilities provide (i.e., PSE&G's My Account). PSE&G currently provides customers with the ability to download 24 months of energy usage history. This functionality can be enhanced to allow customers to authorize third parties to possess their energy usage data. The BPU should consider implementing basic information security and data privacy safeguards for entities that customers may authorize to possess their energy usage data through AMI. Moreover, consent should be obtained from customers before these third parties share customer data with additional entities.

Strategy 6: Support Community Energy Planning and Action in Low-and Moderate-Income and Environmental Justice Communities

- 23) How can NJBPU continue to engage with communities to support local energy planning?

The state's utilities, in coordination with the BPU, can provide onsite educational programs to support local energy planning. Furthermore, PSE&G's CEF-EE Program contains several educational programs that would enhance local communities understanding of energy issues.

- 24) How can New Jersey ensure that LMI households and environmental justice communities benefit from the goals and policies established in the Energy Master Plan?

See the response to Question No. 14.

- 25) What best practices utilized in other states or municipalities should New Jersey consider to support Community Energy Planning?

California's Greenhouse Gas Reduction Fund is a best practice that the State should consider implementing.

Strategy 7: Expand the Clean Energy Innovation Economy

- 26) What industry sectors or job occupations are expected to see growth? Which industry sectors and job occupations are expected to need job training support to ensure an appropriate workforce is available to meet the needs of a growing economy?

There are many industry sectors and occupations that will see significant growth as the State transitions to 100% clean energy. For example, offshore wind will create an entire supply chain of jobs to procure, assemble, ship, install, manage, and maintain this high tech equipment. We can also expect to see continued growth of

the already robust solar industry as we expand the amount of solar installed in the state.

PSE&G recently conducted a study of its existing energy efficiency programs and found that they support about 750 jobs, in categories including:

- **Construction Managers**
- **Electricians**
- **Engineers**
- **HVAC Technicians**
- **Ironworkers**
- **Laborers**
- **Pipefitters**
- **Plumbers**
- **Project Managers**
- **Riggers**
- **Sales Managers**
- **Steamfitters**
- **Welders**

PSE&G is expecting to create 6,000 jobs through its Clean Energy Future proposal. It is pivotal that the state's utilities and the BPU form partnerships with the NJ Department of Labor and Workforce Development, among others, to identify, develop, and train the workers needed for New Jersey's future green energy workforce.

27) What industry sectors or job occupations are expected to stagnate as we get closer to 2050 and beyond, and what retraining tools and strategies can the state use to support transferable skills to new industries?

The following are examples of occupations that could stagnate as a result of the State's goal of 100% clean energy by 2050: fossil and gas plant operators, gas station attendants and owners, and mechanics for gas-powered vehicles. Workshops and career events should be targeted to stagnated professions, with the goal of identifying complementary areas for transition. The State should also partner with its educational institutions to consider the expected economic change in the energy industry.

28) What are best practices, financial tools, and financial infrastructure that New Jersey should consider in supporting the clean energy economy, attracting private investment, and enabling clean energy opportunities to become more affordable for all?

See above for best practices as the State transitions to 100% clean energy, including, but not limited to, utility-run energy efficiency programs; utility investment in EV infrastructure; AMI penetration; utility development of solar energy targeting public entities, community solar projects, and solar on landfills and brownfields; utility deployment of energy storage; and investment in the electric grid (including the necessary transmission upgrades).