February 15, 2019

Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 3rd Floor, Suite 314, CN 350
Trenton, New Jersey 08625

RE: **Comments of Mission:data Coalition on Docket No. QO19010040 regarding energy efficiency (EE)**

To Whom It May Concern:

Mission:data Coalition ("Mission:data") is pleased to provide these comments in response to the Board of Public Utilities ("Board" or "BPU") questions dated January 22, 2019 in the above-referenced docket (the "Notice"). Mission:data applauds New Jersey for pursuing energy efficiency and peak demand reduction programs. If properly implemented, the BPU can empower utility customers of all types with innovative digital services that will provide significant cost savings to ratepayers.

By way of background, Mission:data is a national non-profit coalition of more than 35 technology companies across North America delivering data-enabled services that focus on providing direct energy and carbon savings to all utility consumers (residential, commercial, industrial and institutional customers). These services range from detailed energy usage analysis and energy feedback technologies to demand response and device control. Our members are the leading innovators in the energy management industry, representing over $1 billion per year in sales. We have been active in 15 states across the U.S. helping to craft data access policies. For more information, please visit www.missiondata.io.

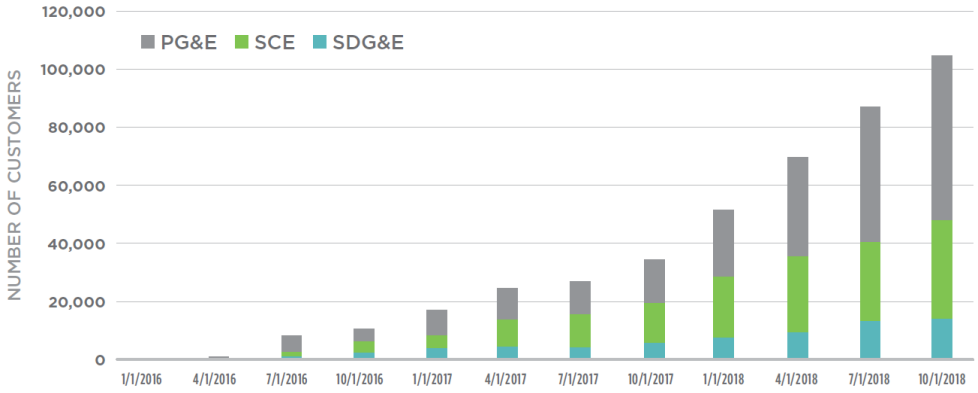
Mission:data believes all consumers should have convenient access to the best available information about their energy usage and costs and the ability to share that data with any third party of their choice. Today, some five states (California, Colorado, Illinois, New York and Texas) have required their utilities to provide "energy data portability," meaning the ability for consumers to share their energy information held by electric and gas utilities with non-utility service providers, covering over 36 million electric meters. Some of these "third party" providers include smartphone apps that help consumers save energy by analyzing their usage patterns with new software tools; some provide heating, ventilating and air conditioning controls that maximize comfort while providing load-shedding capabilities to the grid; and some provide commercial and industrial demand response offerings. Mission:data advocates for consistent, open standards to be used for sharing energy data – in particular, Green Button Connect ("GBC"), a data-exchange standard developed by the Department of Energy ("DOE") and the National Institute of Standards and Technology ("NIST"), which designed to securely transfer customer energy data from utilities to customer-authorized third parties.

Below, we respond to two of the BPU's questions in its January 22, 2019 Notice.

**(1) What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

Mission:data supports a level playing field in which a marketplace of non-utility providers can compete to serve customers with measurable energy efficiency and peak demand reductions. Whether energy efficiency ("EE") and demand response ("DR") are procured by utilities or whether these resources participate directly in wholesale markets, it is important that the EE or DR providers have simple, streamlined access to customer energy data from the utility. The energy data is used to improve the delivery of EE services or settle DR transactions at the wholesale market operator.

Mission:data believes that innovative entrepreneurs and market forces are much more likely to develop advanced energy management tools such as software and smartphone "apps" than are incumbent utilities. In California, companies ranging from residential battery storage providers to distributed energy resource management system ("DERMS") providers and behavioral software firms have submitted bids to deliver megawatts of curtailment under the demand response auction mechanism ("DRAM"). Growth in customer uptake statistics is shown below. There are now over 100,000 customers enrolled in DRAM across the state, partially as a result of dramatically streamlining the online customer enrollment process (many early customers were enrolled through a screen scraping process, implemented because it was impossible for customers to share data easily with third-parties). Similarly, Texas has a competitive bidding process in which DERMS offer their prices for curtailing load, with settlement processes managed by ERCOT. In these states, competitive market structures means that many innovations and research and development activities are being funded by entrepreneurs and not by ratepayers.




*Number of California customers using Green Button Connect to share data with demand response providers, by electric utility and by quarter, 2016-2018. Source: Quarterly compliance filings, CPUC A.14-06-001* et al.

Another example from California is pay-for-performance ("P4P") efficiency programs. Pacific Gas & Electric ("PG&E"), for example, is measuring energy efficiency delivered at the meter to compensate competitive providers which pursue the installation of smart devices in the home, facilitate retrofits or provide weekly email reports to "coach" consumers into shaving 10% or more off their monthly bills.

Like demand response providers, P4P firms depend upon simple and electronic access to customer energy data in order to continuously improve their performance over time. Other utilities in California pursuing P4P programs include Southern California Edison and Southern California Gas Company. One benefit of P4P programs is that ratepayer dollars are only spent *after* the savings have been measured and delivered, ensuring the prudent use of ratepayer funds.

**(7) What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommended for sharing that data?**

Although advanced metering infrastructure (AMI) is not yet widespread in New Jersey, there is still significant value to be obtained from improving access to customer energy data such as monthly bills. Several examples come to mind. For example, states such as Oregon and New York are using P4P energy efficiency programs to cost-effectively compensate energy efficiency "aggregators" for delivered energy savings as determined by monthly consumption data. Although energy savings at particular times of day cannot be determined in the absence of advanced meters, it is still possible to accurately calculate weather-normalized energy savings on a monthly basis. Also, as in other P4P programs, qualified aggregators bid for the opportunity to join the program based on estimated savings, market intervention plan, and bid price. Those that win work with contractors to implement sets of interventions and are paid quarterly based on savings achieved. Similarly, by compensating aggregators at a fixed, known price, New Jersey can be sure that its program is cost-effective.

Another example is commercial buildings and multifamily properties with large monthly energy bills. These customers often contract with energy management firms to help them save money on their bills, but such services require convenient access to monthly bill histories across dozens or hundreds of properties. Whether the customer is looking for a retrofit opportunity or reporting its portfolio-wide energy usage to investors, electronic access to machine-readable bills is a critical prerequisite. We note that, in addition to supporting 15-minute or monthly meter readings, Green Button Connect supports bill information down to the level of individual line items and costs.

Improving access to energy data now will position New Jersey to immediately leverage future investments in AMI once deployment is underway. One of the lessons learned from other jurisdictions implementing AMI (such as California) is that the time lag between deployment of meters and customers receiving tangible benefits was far too long. New Jersey can avoid the mistakes made by other states by ensuring that customer data is portable and securely maintained even before advanced meters are installed. Our report, attached, describes ten (10) elements of a data-sharing policy. In our experience, all ten should be addressed as part of a holistic plan to facilitate energy efficiency and peak demand reduction. To summarize, the ten elements are:

1. **Define "energy data" clearly** to include customer data (name, address, phone number, etc.), billing data (the information shown on bills), usage data (kilowatt-hours or therms, in whatever time intervals are provided by the utility) and "system data" necessary for participation in third-party demand response programs.
2. **Require Green Button Connect** as the data format and transmission protocol.
3. **Define the criteria for third parties to be eligible** to receive data from utilities electronically, but ensure these are not so onerous that small, innovative companies cannot participate.

4. **Establish binding terms of use** so that adherence to a privacy policy (including certain prohibited uses of customer data) is required of third parties.
5. **Approve clear authorization language** so that customers can read and understand a simple, standardized disclosure prior to consenting to have their data shared.
6. **Streamline the customer experience** by requiring utilities to adhere to best practices in online authorizations.
7. **Provide certain platform features to third parties** such as a testing and production environment and the ability for customers to authorize two entities at once.
8. **Clearly define the revocation process** that describes how, and under what circumstances, a customer may revoke a third party's authorization.
9. **Define enforcement processes against "bad actors"** to clarify roles and responsibilities of utilities and third parties.
10. **Mandate "quality of service" metrics and performance reporting** so that utilities are held to a high standard in the provision of their information technology systems, including 99.9% uptime.

In addition, several jurisdictions are considering requiring a hosted, centralized repository of energy data as a way to streamline the interactions with customer-authorized third parties. For example, Texas was the first state to provide a single web portal for retailers and third parties to access customer information called Smart Meter Texas ("SMT"). The objective was to provide a central clearinghouse of advanced metering data across the state's four large distribution utilities, making it much easier for third parties to get the information they need. Similar efforts in other states are beginning to take root as well: New Hampshire's SB 284 contemplates a state-wide repository of customer energy data[1]; Washington, D.C.'s DER Authority Act would establish a meter data repository to serve the siting and operations of distributed energy resources ("DERs").[2] Other states such as Ohio are also discussing the possibility of a centralized energy data platform. We strongly encourage the BPU to engage with and learn from these efforts, particularly if New Jersey moves forward with AMI deployment.

In conclusion, Mission:data stands ready to assist the BPU and stakeholders on these issues. We look forward to working with you and thank you for the opportunity to provide comments.

Sincerely,

_____/s/_____

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[1] http://gencourt.state.nh.us/bill_status/billText.aspx?id=1077
[2] https://www.utilitydive.com/news/dc-council-bill-would-establish-uss-first-independent-der-authority/521055/

CascadeEnergy

March 1, 2019

**Via email to: energyefficiency@bpu.nj.gov**

**Re: New Jersey Energy-Efficiency and Peak Demand Reduction Programs**

**To Whom it May Concern,**

Cascade Energy appreciates this opportunity to provide feedback on New Jersey's development of new energy-efficiency (EE) and peak demand reduction programs required pursuant to recent legislation. We are an energy-efficiency engineering consulting firm based in the Pacific Northwest and have been a leading provider of services to the industrial and agricultural sectors since 1993. Our organization is dispersed across the United States, with 10 offices in seven states (California, Idaho, Illinois, New York, Oregon, Utah, and Washington).

Our comments focus on three questions detailed in the public notice dated January 22, 2019:

***1. What are some best practices for energy-efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois; etc.)—including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation—that New Jersey can implement to reach its energy-efficiency and peak demand reduction goals?***

For a market the size of New Jersey, and with goals as ambitious as New Jersey's, we recommend an administrative structure similar to Energy Trust of Oregon's as a best practice. Energy Trust is a non-profit organization that administers the statewide demand-side management (DSM) programs for all electric and gas investor-owned utilities (IOUs) in the state of Oregon. The IOUs collect funding for DSM programs via rate tariffs, and Energy Trust administers and contracts with an array of third-party firms to implement these programs across all market segments. In our experience, this model involving a single unbiased administrator and multiple implementers maximizes the possibility of meeting energy-efficiency and demand-reduction goals at the lowest cost, for reasons including the following:

- **Consistency**. A single statewide administrator provides program consistency across the state. Multi-site commercial and industrial enterprises and the trade allies that serve them operate facilities across multiple New Jersey IOU territories. Clear and consistent programs that cross these same utility boundaries provide simplicity for these key market players. These individuals are focused on other issues that matter to them—not necessarily energy efficiency. Program simplicity and consistency is essential for participation, exceeding the value of the incentives the program provides. For example, a program designed to serve smaller ag customers is very different from a multi-year strategic energy management (SEM) engagement for a large customer. Both programs fall under the statewide administrator, who can ensure statewide consistency within each offer. If that administrator is completely focused on achieving the state's energy goals, they can pull together the right implementers to achieve those goals.

- **Targeted Expertise.** The industrial sector is a significant resource for cost-effective EE and peak demand reduction. However, the industrial sector can also be complex, highly regulated, and risk averse, and incorporates a diverse set of business types and energy needs. To effectively reach and serve these complex facilities, a deep level of programmatic and technical expertise is required. As an example, wastewater plants are ubiquitous across the state and notoriously difficult to reach. Relying on resources without specific wastewater industry experience to serve this market would be a significant impediment to achieving goals. Effectively reaching the residential and commercial sectors requires specific implementer expertise as well. We have not seen a single, statewide implementer offer the targeted, sector-specific expertise required to be effective in each segment for a market as large and diverse as New Jersey's.
- **Risk Mitigation.** Using a diverse set of implementers reduces the risk of the program not achieving goals because of a single implementer's underperformance.

While we acknowledge more complexity for the administrator in working with multiple implementation contractors, we also believe this model provides the administrator with greater control and likelihood to align outcomes with needs.

Another best practice we recommend is outsourcing program outreach to a third party. The industrial sector in particular requires face-to-face outreach to move the market. The individual tasked with outreach must have the right expertise and be solely focused on developing projects to meet customer goals. Utility account managers juggle numerous priorities and are less able to devote focused time to sector-specific outreach and project development.

***3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria, and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a statewide approach, and how can they be overcome?***

We again hold up the Energy Trust of Oregon model as a best practice and recommend that all markets be served by a single statewide administrator that contracts with multiple third parties for implementation. Energy Trust uses an array of third-party firms to implement their DSM programs across all the different market segments. This approach provides Energy Trust with resources that have targeted expertise and capability within each market segment.

We also strongly recommend breaking out a combined commercial and industrial (C&I) program structure into separate commercial and industrial programs. Each sector involves a different approach to market, and each is better served by a separate program. The commercial sector consists of similar building types and multi-site enterprises. Industrial customers have a more diverse set of business types and energy opportunities, which requires a more targeted outreach approach where technical expertise is paramount.

We advocate for consistent incentives, eligibility criteria, and rules across all service territories. Within New Jersey, there are business customers with facilities located across multiple service areas, as well as trade allies serving those facilities across the state. Standardization provides the necessary simplicity for trade allies and other service providers to effectively market DSM

programs. Standardization also minimizes the risk of customer dissatisfaction because of perceived fairness issues or miscommunication.

New Jersey's IOUs can be either a barrier or gateway to success in implementing a statewide approach. It is critical that the IOUs are partners in delivering these programs, and that the program delivery teams never lose sight that they are working with these utilities' biggest and most important customers. We commend New Jersey's efforts to date to collaborate with IOUs on program design.

***4. How can these programs be delivered at the lowest cost to ratepayers, while also providing optimal ease of use and customer service and maximizing market utilization?***

In our experience, getting customers to implement projects is the biggest lever in maximizing cost effectiveness. This involves both qualifying customers effectively to understand where to invest resources and having dedicated resources in place to follow through and get viable projects completed. In many programs, a technical representative conducts a scoping and delivers a report to the customer with energy-efficiency opportunities to pursue. It is critical that the program doesn't detach at that point. A program resource must remain engaged with that customer, continuing to follow up on the status, and working with the customer to remove the barriers to implementing the project.

This close engagement with the customer can also serve as a launching pad for the next project, further improving cost effectiveness. (Costs and development timeline are less when doing a second project with an existing customer versus doing a new project with a new customer.)

In summary, our recommendation for cost effectiveness is to ensure the appropriate resources are available to go deeper on projects with a subset of customers, rather than going shallow across a wider swath of customers. We have seen this approach generate comprehensive projects at engaged facilities. These projects go way beyond widget-based, measure-by-measure system upgrades, to system-wide upgrades, core process re-engineering, and whole-facility optimization: the kinds of projects that will help New Jersey meet its energy efficiency and peak demand reduction goals.

Please feel free to contact me if I can provide any additional clarification on our response. Again, thank you for the opportunity to comment.

Sincerely,

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State of New Jersey

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**RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c.17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

Dear Secretary Camacho-Welch:

The American Council for an Energy-Efficient Economy ("ACEEE") is pleased to submit these comments to the Board of Public Utilities ("BPU") in the above reference proceeding.

Sincerely,


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## I. INTRODUCTION

The American Council for an Energy-Efficient Economy ("ACEEE") is a nonprofit research organization based in Washington, D.C., that conducts research and analysis on energy efficiency. ACEEE is one of the leading groups working on energy efficiency issues in the United States at the national, state, and local levels. We have been active on energy efficiency issues for more than three decades.

ACEEE appreciates the opportunity to provide comments and recommendations on the establishment of new energy efficiency and peak demand reduction programs related to P.L. 2018, c. 17, the Clean Energy Act. We submit these comments to provide the BPU with context and data to support a framework for a successful energy efficiency industry in New Jersey.

Refining the BPU's regulatory policies and procedures to maximize cost-effective deployment of energy efficiency is critical to enabling New Jersey to meet its long-range sustainability and societal goals. Research has demonstrated that energy efficiency programs are on average the least-cost resource available to electric utilities nationally, generally cheaper than adding new supplies.[1] In addition, energy efficiency provides a variety of corollary benefits including local employment, comfort, health and safety improvements for customers, reduced environmental emissions, improved efficiency and competitiveness of local businesses, and reductions in customer energy burdens. Research also consistently demonstrates the substantial value of energy efficiency to reduce system costs and defer the need to invest in costly distribution and transmission infrastructure.[2]

ACEEE has identified a variety of strategic opportunities and policies available to regulators and policymakers in New Jersey to help strengthen energy efficiency across multiple end-use sectors. The *State Energy Efficiency Scorecard*, an annual report published by ACEEE that benchmarks state progress on energy savings programs across several dozen metrics, ranked New Jersey 18th nationally in energy efficiency and ninth among northeast states.[3] The signing of Senate Bill 2314 created new long-range utility savings targets which helped the state improve beyond its 2017 ranking of 23rd. However, the development of robust annual efficiency portfolios to meet incremental annual goals will be essential to maintaining and improving New Jersey's future standing. Though program administrator-reported electric savings edged upwards in 2017, they remained below the national average, such that New Jersey earned just 6.5 out of a possible 20 points in the Scorecard for its utility programs. Recommendations provided below, particularly those related to clarifying program administrator roles

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[1] Molina, M. & G. Relf. 2018. *Does Efficiency Still Deliver the Biggest Bang for Our Buck? A Review of Cost of Saved Energy for US Electric Utilities*. 2008 ACEEE Summer Study on Energy Efficiency in Buildings. aceee.org/files/proceedings/2018/index.html#/paper/event-data/p191.

[2] See Lamont. D. & J. Gerhard. 2013. *The Treatment of Energy Efficiency in Integrated Resource Plans: A Review of Six State Practices.* Regulatory Assistance Project for an overview of the process of including energy efficiency in integrated planning; a key example is the 7th Northwest Conservation and Electric Power Plan (https://www.nwcouncil.org/reports/seventh-power-plan)

[3] Berg, W. et al. 2018. The 2018 State Energy Efficiency Scorecard. aceee.org/research-report/u1808.

and adjusting the utility business model to align incentives with investments in efficiency, will help strengthen programs by enabling utilities to take full advantage of efficiency as a resource.

Below we provide responses to questions 1-12. For each subject area, ACEEE can share additional in-depth research upon request.

## II. Responses

### 1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?

A vital first step to successfully achieving energy savings targets is to establish a clear and robust funding mechanism that can adequately support implementation of programs that meet those targets. States typically recover costs of programs through a combination of several pathways: base rate adjustments, system benefit charges, and other surcharges. Policies should clarify expectations regarding how these funds are to be distributed among programs addressing different fuel types and customer sectors. It is common for minimum spending requirements to be set for low-income customers, which have historically been underserved due to a variety of factors despite often living in older less efficient housing. Maine, for example, requires at least 10% of funds go towards supporting low-income residents, and at least 10% of funds must support energy programs for small business customers.[4]

In recovering direct costs, the most common approach is to treat program costs as an expense, which is then recovered as an additional element of the revenue requirement during the next rate case, or through the levying of a public benefits charge. For example, the Arizona Corporation Commission authorized the Arizona Public Service Company (APS) to funds its DSM programs through an annual $10 million addition to its base rate, and through implementation of an adjustor averaging $6 million per year.[5] Connecticut's programs are funded by a monthly systems benefit charge of 0.3 cents per kWh, which can also be increased through an adjustment mechanism. Additional funds are provided through revenues the Connecticut electric utilities receive from the ISO-New England Forward Capacity Market (FCM) and from Regional Greenhouse Gas Initiative (RGGI) funds. However, some states have not adopted implementation rules providing adequate funding to support state savings targets, e.g. Delaware and Florida. Their energy savings achievement has suffered as a result. Both states reported utility electric savings far below the national median in 2017 of 0.66%. ACEEE's State Scorecard ranked Delaware and Florida, 35th and 37th, respectively, in terms of the strength of utility program and policies supporting energy efficiency.[6]

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[4] L.D. 1559, "An Act to Reduce Energy Costs, Increase Energy Efficiency, Promote Electric System Reliability and Protect the Environment." mainelegislature.org/legis/bills/getPDF.asp?paper=HP1128&item=6&snum=126.

[5] Arizona Corporation Commission. Docket No. E-01345A-03-0437, Decision No. 67744. April 7, 2005. https://www.azcc.gov/divisions/utilities/electric/APS-FinalOrder.pdf.

[6] Berg, W. et al. 2018. *The 2018 State Energy Efficiency Scorecard*. aceee.org/research-report/u1808.

Energy efficiency policies in leading states align utility business models with energy efficiency by approving of a decoupling mechanism, as well as performance incentives that reward utilities for reaching specified program goals. Together with direct cost recovery, these mechanisms are sometimes described as the "three-legged stool" of utility energy efficiency. Decoupling seeks to remove the disincentive to efficiency investment by severing the link between utility sales and revenues. This is achieved through a periodic adjustment of revenue recovery based on the difference between projected and actual sales ensuring full cost recovery of authorized revenue requirements regardless of impacts of efficiency on sales. Ideally these adjustments are symmetrical, meaning customers are also protected and permitted refunds in the event of utility over-recovery. As of 2018, 17 states have approved some form of revenue decoupling for electric utilities, and 26 have adopted decoupling for gas utilities.[7] For additional detail, see the Regulatory Assistance Project's guide for making decoupling design decisions based on state-specific goals.[8]

Finally, ACEEE has found that performance incentives are also among the most important factors contributing to higher savings. Performance incentives allow utilities to earn return on investment related to efficiency in a way that is competitive with the returns they receive on other assets and infrastructure. A December 2018 ACEEE topic brief provides the latest on the utility performance incentive landscape.[9] Past ACEEE research has also profiled types of regulatory tools available to align utility business models with energy efficiency.[10]

Administrative structure is critical, and program administration should clearly define roles and responsibilities and align with both the targets and the utility business model incentives. In determining an appropriate administrative structure for delivering efficiency programs to New Jersey customers, a variety of options and examples are available from other states that include both utility-led structures, government administration, independent third-party administration, or some hybrid. In Question 3, we outline the markets which might be most appropriate for statewide administration and discuss the tradeoffs between different types of private and public administrators.

### 2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?

Currently seven states have mandates requiring all-cost effective efficiency: California, Connecticut, Maine, Massachusetts, Rhode Island, Vermont, and Washington. These requirements generally call for

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[7] Sullivan, D. and D. DeCostanzo. 2018. *Gas and Electric Decoupling. https://www.nrdc.org/resources/gas-and-electric-decoupling*

[8] Migden-Ostrander, J. and R. Sedano. 2016. Decoupling Design: Customizing Revenue Regulation to Your State's Priorities. Regulatory Assistance Project. raponline.org/wp-content/uploads/2016/11/rap-sedano-migdenostrander-decoupling-design-customizing-revenue-regulation-state-priorities-2016-november.pdf.

[9] Relf, G. & S. Nowak. 2018. *Snapshot of Energy Efficiency Performance Incentives for Electric Utilities*. ACEEE. aceee.org/topic-brief/pims-121118.

[10] Molina, M. and M. Kushler. 2015. *Policies Matter: Creating a Foundation for an Energy-Efficient Utility of the Future*. aceee.org/white-paper/policies-matter.

investment in all available energy efficiency and demand reduction resources that are less expensive than supply. Past ACEEE research has reviewed and analyzed different state regulatory language related to the all cost-effective mandate.[11] While interpretations of "all cost-effective" can differ somewhat depending on perspective, key strategies for determining an optimal target include conducting a comprehensive cost-effectiveness assessment that also includes a consideration of often over-looked non-energy benefits (see Question 8), as well as receiving input from a diverse group of stakeholders to capture a holistic understanding of all cost and benefits.

For example, while Massachusetts acknowledges that there is "no simple, algebraic method to evaluate" all cost-effective energy efficiency, the Department of Public Utilities considers several factors in weighing whether it has been achieved: "(1) the steps the Program Administrators (PAs) have taken to implement energy efficiency given the current state of energy efficiency supply and demand; (2) the steps PAs will take to expand future energy efficiency opportunities; and (3) the results of potential studies".[12] PAs are required to conduct these potential studies every three years to inform planning for each program cycle. These studies look at technical, economic, and achievable potential savings and determine both what is technically feasible given current technologies and economic conditions, as well as what is practically achievable based on current real-world program and market barriers. Through review of these studies, and a collaborative stakeholder process defined in the Green Communities Act, the state's Energy Efficiency Advisory Council, program administrators, and DPU arrive at a negotiated agreement regarding reasonable cost-effective potential for programs.

Also underpinning determinations of all cost-effectiveness is the type of cost-effectiveness test chosen by regulators to screen programs. The most commonly used are the total resource cost (TRC) test (including costs and benefits experienced by the entire customer base, including nonparticipants), the utility cost test (UCT) (focused on energy costs and benefits experienced by the program administrators), and the participant cost test (PCT) (including costs and benefits experienced by efficiency program participants). ACEEE has recommended the UCT, also known as the Program Administrator Cost test (PACT), due to its simplicity and the fact that it most closely mimics utility investment decisions on transmission, distribution, and generation investments. While most states primarily rely on the TRC, the way it is commonly applied suffers from several deficiencies, including its frequent neglect of many non-energy benefits. The National Standard Practice Manual (NSPM), developed by the National Efficiency Screening Project and E4TheFuture, is a helpful resource providing guidance regarding how to improve C/E practices and selection of cost and benefits to include in screening.[13] Please see our response to Q8 for additional details.

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[11] Gilleo, A. 2014. Picking All the Fruit: All Cost-Effective Energy Efficiency Mandates. aceee.org/files/proceedings/2014/data/papers/8-377.pdf.

[12] Mass Save. 2018. Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan: 2019-2021. ma-eeac.org/wordpress/wp-content/uploads/Exh.-1-Final-Plan-10-31-18-With-Appendices-no-bulk.pdf.

[13] Woolf, T., C. Neme, M. Kushler, S. Schiller, and T. Eckman. 2017. *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources*. Framingham, MA: NESP (National Efficiency Screening Project). nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_May-2017_final.pdf.

### 3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?

While there are some states with purely utility or statewide administration, many assign some activities to statewide program administrators and other activities to local utility program administrators. Energy efficiency markets best served statewide are those for which the market itself is not specific to a utility service territory – where markets don't stop at utility service territory boundaries, and where there are economies of scale associated with statewide or even regional administration. Our research finds that market transformation (including codes and standards and upstream/midstream programs), research and development, new construction, low income programs, and workforce, marketing and education programs are the most common categories for statewide administration in hybrid models. Below we describe potential rationales for each type of market or program and provide examples from leading states.

Market Transformation

Market Transformation programs deliver long-lasting, sustainable changes in the structure or functioning of a market. They include activities to promote one set of efficient technologies, processes or building design approaches until they are adopted into codes and standards (or otherwise substantially adopted by the market), while also moving forward to bring the next generation of even more efficient technologies, processes or design solutions to the market.[14] These programs often involve activities that generate economies of scale at a statewide or even regional level for marketing and working with major suppliers and other market actors.

In New York, the New York State Energy Research and Development Authority (NYSERDA), delivers market transformation programs through its Clean Energy Fund, tracking against 10-year goals, while utilities provide resource acquisition savings through annual goals. The Pacific Northwest delivers market transformation programs at the regional level through NEEA, the Northwest Energy Efficiency Alliance, which is jointly funded through each of the regional utilities. Many of California's market transformation-focused programs, including codes and standards development and support and midstream and upstream programs, are delivered statewide by individual utilities designated as the "lead" utility for that program.

Research and Development

Research and development and emerging technologies programs are commonly administered at the state level, both to leverage findings across the state and because partnerships with universities and other education institutions may be most effectively pursued at the state level. NYSERDA maintains an Innovation and Research portfolio to catalyze innovations, with a focus on "key points where

[14] CPUC, Guidelines for Selecting Market Transformation Indicators (MTIs). Guidelines for Selecting Market Transformation Indicators. ftp.cpuc.ca.ftp://ftp2.cpuc.ca.gov/PG.../2011/10/SB_GT&S_0821661.pdf

commercialization can stall and the private sector is less likely to fill gaps."[15] Similarly, the California Energy Commission manages R&D through its Energy Research & Development program, including offices for energy efficiency and deployment and market facilitation. However, many states also allow or require utilities to conduct local innovation activities. In California, individual utilities manage statewide emerging technologies programs, but each program administrator has the ability to continue local pilots that are not yet ready for statewide treatment.[16]

New Construction

New construction programs provide design assistance, training and incentives for more efficient new buildings. Construction markets vary in size and scope of design and builder companies, and some may work across utility service territory boundaries. Furthermore, complementary activities like real estate benchmarking and codes development may have efficiencies at the state level. In New York, NYSERDA runs new construction programs. In California, new construction is managed statewide, but by one lead utility, Pacific Gas & Electric.

Low income

Statewide administration of low-income programs may be most efficient where the state is able to combine funds from related sources like housing authorities or health departments, or as a part of state administration of state and federal weatherization funds. NYSERDA delivers low income programs in New York state. Absent low-income assistance programs, utilities may struggle to secure income verification data; states may have access to that information through qualification for other state programs.

One example is Maryland, where the Department of Housing and Community Development has administered the state's limited-income energy efficiency programs since 2012. Those programs have been effective in delivering substantial energy savings for each participating household, although overall participation has been low.[17] However, utilities lead low income energy efficiency program administration in many states. In Illinois, the legislature transferred responsibility of low-income energy efficiency programs to utilities in late 2016.[18]

Workforce, marketing and education

Programs that support training and development of an energy efficiency workforce may have operational efficiencies at the statewide level through connections to state labor agencies and talent pipelines from statewide educational institutions. California's Workforce Education and Training programs organize training around technology categories (e.g, HVAC and lighting) and building types

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[15] NYSERDA. 2017. *Annual Investment Plan and Performance Report through June 30, 2017*: Final Report. Annual Investment Plan and Performance Report through June 30, 2017

[16] CPUC. D.18-05-041

[17] Stefen Samarripas, Lauren Ross, and Tyler Bailey. 2017. *Making Maryland Homes More Affordable through Energy Efficiency.* https://aceee.org/research-report/u1711

[18] Illinois General Assembly. 2016. *Public Act 099-0906: FEJA (Future Energy Jobs Act)*. Springfield: Illinois General Assembly. www.ilga.gov/legislation/publicacts/99/PDF/099-0906.pdf.

(e.g, commercial and residential) and collaborates with educational institutions including community colleges, trade organizations, and universities.[19] Similarly, while marketing and education efforts may have a local component, there may be efficiencies from statewide administration where media markets do not neatly align with service territories.

Regulators also face the question of who should serve statewide markets – utilities, state agencies, or third-parties? Our research finds that each model can be successful – the top ten scorers in ACEEE's *2018 State Scorecard* are populated by utility, third party, and hybrid administration models. Below we outline examples and some considerations for each model of statewide program administration. The Regulatory Assistance Project provides a more detailed resource for evaluating the strength of each model based on compatibility with broader policy goals, accountability, and effectiveness.[20]

> **State-run program administrators:** Examples of pure statewide administration include Hawaii Energy, Energy Trust of Oregon, and the D.C. Sustainable Energy Utility. Benefits of non-utility administration include the ability to create a single-purpose organizational objective in support of energy efficiency and to become a trusted, independent authority. However, successful non-utility administration requires special effort to ensure customer recognition and trust, to secure needed customer and system data to run programs, and to ensure that funding and contracting are stable, timely and responsive, and not subject to political change.
>
> **Utility program administrators:** In some states, like Massachusetts, utilities serve all markets as the primary program administrator. In others, like California, utilities serve some markets in their specific service territory, and also take the lead for coordinating a specific set of statewide programs. Utility administration can leverage customer relationships, organizational structure, and in-house expertise on energy use, marketing, accounting, and other aspects of program delivery. However, successful utility administration requires that shareholder and management incentives are aligned with energy savings objectives of customer programs, and that funding is predictable.
>
> **Hybrid models:** Within states, there is rarely a true "statewide" program---in many cases there are mixed models, such as statewide public benefits programs and separate or parallel utility programs, like New York and Maryland, or primarily utility programs with some non-utility programs, as in Michigan. Vermont has a state-wide non-utility program for electric customers and utility programs for natural gas customers, which are coordinated with the statewide electric programs. In Pacific Northwest states, where the Northwest Energy Efficiency Alliance runs regional market transformation programs in parallel with utility or statewide program administrators.

Regardless of the structure and specific markets chosen for statewide administration, the key is to make sure that targets or goals, business model incentives, and administration structure are aligned.

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[19] CPUC. 2018. *Energy Efficiency Portfolio Report.* *http://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/Office_of_Governmental_Affairs/Legislation/2018/13-15%20Energy%20Efficiency%20Report_Final.pdf*

[20] Sedano, R. 2011. *Who Should Deliver Ratepayer-Funded Energy Efficiency? A 2011 Update*. raponline.org/knowledge-center/who-should-deliver-ratepayer-funded-energy-efficiency-a-2011-update.

Obligated entities for goals, incentives, and penalties should have clear administrative responsibility that enables them to meet those goals and earn those incentives. Furthermore, staff competency is critical regardless of the administrative structure. Staff should be well trained, encouraged to succeed by management, and should have the contracting resources, authority, financial resources, and data required to successfully administer programs without too much delay and "red tape."

**4. HOW CAN THESE PROGRAMS BE DELIVERED AT THE LOWEST COST TO RATE PAYERS, WHILE ALSO PROVIDING OPTIMAL EASE OF USE AND CUSTOMER SERVICE AND MAXIMIZING MARKET UTILIZATION? AND 5. WHAT IS THE BEST WAY TO MINIMIZE ADMINISTRATIVE COSTS AND AVOID DUPLICATIVE ADMINISTRATIVE STRUCTURES?**

Any ratepayer investments should be reasonably scrutinized to ensure that they are delivered in a way that balances cost and efficiency with equity considerations about ease of access to programs as well as quality of program delivery.[21] However, it is important to consider this question in the broader context of other resources. Energy efficiency continues to be one of the lowest cost system resources. ACEEE research shows that in the 2015 program year, energy efficiency programs cost utilities, on average, about 3.1 cents per kilowatt-hour nationally, including program costs and performance incentives.[22] Because investments in energy efficiency reduce total electric load at a low cost, they mitigate reliance on more expensive utility investments in generation, transmission and distribution resources. This reduces costs for all customers in the system by reducing fuel costs and market purchases.

We recommend considering the factors outlined in this question as criteria for effective program delivery in a framework to maximize societal *net* benefits, rather than minimizing program costs. A net benefits framework enables the BPU to consider both the inputs of cost and outputs of value. In addition, where these factors are policy priorities, the BPU can consider setting Quantitative Performance Indicators that measure success at meeting goals like ease of use, customer service, and market utilization. When program administrators face carefully designed outcome-based performance incentives, they are typically successful at delivering on policymaker priorities. If the BPU chooses to set Quantitative Performance Indicators (QPIs) based on cost, it should focus on metrics that minimize system cost rather than energy efficiency program costs. While energy efficiency program costs should be minimized where possible, the primary objective should be delivery of all cost-effective energy efficiency.

Finally, there are specific tactics to support each of these objectives. To minimize program cost, the program administrators can avoid duplicative programs and run effective and timely procurement

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[21] Hoffman, G. Leventis, and C. Goldman, Tren*ds in the Program Administrator Cost of Saving Electricity for Utility Customer-Funded Energy Efficiency Programs* (Berkeley: LBNL, 2017), http://eta-publications.lbl.gov/sites/default/files/lbnl-1007009.pdf; Lazard, *Lazard's Levelized Cost of Energy Analysis: Version 11.0*(2017), https://www.lazard.com/media/450337/lazard-levelized-cost-of-energy-version-110.pdf.

[22] Maggie Molina & Grace Relf. 2018.Does Efficiency Still Deliver the Biggest Bank for Our Buck? A Review of Cost of Saved Energy for Electric Utilities, Am. Council for an Energy-Efficient Econ). aceee.org/files/proceedings/2018/index.html#/paper/event-data/p191

processes. In addition, program costs can be minimized by reducing unnecessary customer touchpoints, automating processes where possible, and bundling measures into comprehensive programs.[23] Upstream or midstream programs that target entities up the value chain like manufacturers and distributors can yield more cost-effective savings in some cases.[24]

### 6. What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?

Given the goals in Senate Bill 2314, annual energy efficiency savings will need to more than triple over the next five years. To achieve such a large increase will likely require a larger role for utilities, particularly utilities who show a sincere interest in implementing creative and successful programs. BPU staff should meet with each of the utilities and assess their interest and ability to operate programs that meet the SB 2314 goals, either individually or through the Independent Advisory Council process. From our observations of NJ utilities, we suspect that some utilities will be more able to deliver successfully on efficiency than other utilities. Based on these meetings and their assessment of utility interest and abilities, the BPU should plan on at least some utilities playing a much larger role on energy efficiency implementation.

Even for these utilities, it may make sense for the BPU to continue to operate a few statewide programs as discussed in our answer to Question 3. And for these utilities, a gradual transition from primarily BPU programs to primarily utility programs should be planned. For example, when New York State made this transition recently, they developed a gradual three-year transition plan to allow new programs to ramp-up and to minimize disruptions in the market place. However, it is possible that some NJ utilities do not have the interest or ability to ramp up programs to meet the SB 2314 goals. If this is the case, the BPU or another utility acting in a statewide role could continue to operate and potentially scale up their programs in these service areas, working with the utility to design a set of complementary utility and BPU programs that will best serve the market.

### 7. What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommend for sharing that data?

Improving accessibility of energy use data is crucial for maximizing energy efficiency potential by providing information to residents and businesses about baseline energy usage and enabling them to make more informed choices regarding how to improve future performance. Access to aggregated energy use data is also important to help local governments improve delivery of energy efficiency programs and better meet sustainability and benchmarking goals. Pending proposals to roll out

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[23] R. Gold, M. Henchen & L. Guccione. 2017. *Customer-Centric Energy System Transformation: A Case Study of the Opportunity with Green Mountain Power*. Rocky Mountain Institute. https://www.rmi.org/insights/reports/customer-centric-energy- transformation/

[24] M. Quaid & H. Geller. 2014. *Upstream Utility Incentive Programs: Experience and Lessons Learned* http://www.swenergy.org/data/sites/1/media/documents/publications/documents/Upstream_Utility_Incentive_Programs_05-2014.pdf

advanced meter infrastructure (AMI) across the state provide an opportunity to empower customers and policymakers with more granular data to unlock potential savings if paired with clear supportive policies, guidelines, and tools to streamline data sharing.

To start, the BPU can take steps to develop standard language identifying terms of allowable data usage for different types of data and types of users. For example, a growing number of states have approved rules enabling the use of automated tools, such as Green Button Connect (GBC),—including California, Colorado, New York, and Illinois—enabling easy sharing of customer energy information from a utility to a Third Party with customer consent. Guidelines for third-party access typically include a statement of purpose, a discussion of prohibitions or allowable data-sharing with consideration of consumers' rights to privacy, and an authorization period with an expiration date. Illinois Docket 15-0073 laid the groundwork addressing many issues related to third-party data usage guidelines that paved the way for the ICC's approval of the Open Data Access Framework in which Ameren Illinois and ComEd agreed to implement GBC.[25] Mission: Data offers a helpful 10-point framework for utility regulators seeking to create a comprehensive energy data sharing policy, such as defining the categories of information to be shared (billing, usage, and systems data), as well as eligibility criteria for third parties seeking authorization, and terms of use, including privacy policy.[26]

For multi-family or commercial building owners, access to building-level aggregated data is important to help building managers distinguish and better manage energy used in common areas. The Sustainable DC Act of 2014 includes a provision mandating that both electric and gas utilities provide aggregated whole-building data when building owners request it. These data are then made available for download, as well as for automated upload to ENERGY STAR® Portfolio Manager. Excel Energy in Colorado also provides a helpful model of robust energy benchmarking services made available to buildings owners.[27]

In addition to providing individual customer data to consumers, building owners, and authorized third-parties, there are multiple other use cases for when guidelines should be developed to facilitate data sharing. For example, a California Public Utilities Commission rulemaking recognizes specific use cases for local governments seeking access to customer data in aggregate form to assist in climate action planning; for research institutions seeking anonymous energy consumption data to evaluate energy policies; and for environmental groups seeking customer data regarding energy efficiency measures pre- and post-retrofit (Decision 14-05-016).[28]

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[25] Proceeding to Adopt the Illinois Open Data Access Framework, Docket No. 14-0507 (ICC Jul. 26, 2017), https://www.icc.illinois.gov/downloads/public/edocket/450960.pdf.

[26] Murray, M., L. Kier, and B. King. 2017. *Energy Data: Unlocking Innovation with Smart Policy*. Mission: Data and Advanced Energy Management Alliance. static1.squarespace.com/static/52d5c817e4b062861277ea97/t/5a3a8c66c8302509260492b2/1513786475950/Energy-data-unlocking-innovation-with-smart-policy.pdf.

[27] Xcel Energy. 2018. *Energy Benchmarking Services User Guide*. https://www.xcelenergy.com/staticfiles/xe/PDF/Marketing/Bus-Solutions-Benchmark-User-Guide.pdf.

[28] California Public Utilities Commission. Decision 14-05-16: Decision adopting rules to provide access to energy usage and usage-related data while protecting privacy of personal data, May 1, 2014. http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M090/K845/90845985.PDF.

For more information please see the ACEEE policy brief *Best Practices for Working with Utilities to Improve Access to Energy Usage Data*.[29] ACEEE's State Policy Toolkit also provides recommendations for regulators in developing data access guidelines for a variety of users, along with links to state examples.[30]

### 8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?

New Jersey currently uses a variety of standard cost-effectiveness tests outlined in the *California Standard Practice Manual* (CA SPM) but should consider reviewing and updating their terms to adhere to best practice principles. The *National Standard Practice Manual* (NSPM), published in May 2017 by the National Efficiency Screening Project and E4TheFuture, provides a comprehensive and improved approach to current cost-effective practices, as well as guidance on selecting the appropriate categories of cost and benefits to include in screening.[31]

The NSPM includes: (1) Universal Principles for developing and applying cost-effectiveness assessments, (2) a Resource Value Framework (RVF) in the form of a step-by-step process for utility commissions to use in developing a primary cost-effectiveness test, and (3) neutral, objective guidance for selecting a test and its components, and applying and documenting policies and data defining the test. Issues addressed include defining and estimating utility system impacts, accounting for impacts external to the utility system, determining discount rates, defining the analysis period, dealing with free-riders and spillover, and accounting for rate and bill impacts.

Developing a comprehensive understanding of utility system costs and benefits should provide the foundation for every cost-effectiveness test. Ideally, all costs and benefits associated with energy efficiency that are relevant to the state's policy goals should be calculated. This includes a thorough estimation of avoided costs based on comprehensive and up-to-date analysis, such as avoided energy costs, generating capacity costs, transmission & distribution, and other avoided ancillary services. In addition, efficiency provides a wide range of valuable non-energy benefits that include participant impacts (productivity, comfort, health and safety), water impacts (e.g. decreasing consumption and related treatment costs), environmental benefits associated with reducing pollution, GHG, and land use, as well as economic development and job creation benefits.

In selecting and tracking types of impacts to include in the test, it is essential that close attention is paid to maintaining symmetry, that is for each type of cost recorded, the corresponding benefit must also be included. The National Efficiency Screening Project's *Resource Value Framework Template Reporting*

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[29] ACEEE. 2014. *Best Practices for Working with Utilities to Improve Access to Energy Usage Data*. aceee.org/files/pdf/toolkit/utility-data-access.pdf.

[30] ACEEE. "Energy Usage Data Access: A Getting-Started Guide for Regulators." aceee.org/sector/state-policy/toolkit/data-access.

[31] Woolf, T., C. Neme, M. Kushler, S. Schiller, and T. Eckman. 2017. *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources*. Framingham, MA: NESP (National Efficiency Screening Project). nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_May-2017_final.pdf.

*Table*, provided in Appendix A, is a helpful tool for considering utility and non-utility costs and benefits. Northeast Energy Efficiency Partnerships (NEEP) has also published an informative guide to quantifying NEBs for inclusion in cost-effectiveness testing, including examples and links to different methods and analyses used for specific NEBs in many neighboring states.[32] ACEEE also documented different ways in which states calculate and account for environmental and health benefits of energy efficiency in a December 2018 topic brief.[33] Most of the 19 states we profile account for these benefits either directly by monetizing them based on jurisdiction-specific studies or estimates from other areas, or through using proxies and other substitutes. ACEEE has also surveyed state practices for valuing benefits and cost-effectiveness of low-income programs.[34]

Also critical to successful cost-effectiveness screening is the use of appropriate discount rates, which are used to calculate the net present value of benefits for programs producing energy savings over multiple years. Using a high discount rate that doesn't accurately reflect the lower level of risk associated with efficiency programs can significantly undervalue their benefits, especially for those with longer measure lives, such as building retrofit programs and new construction programs. The most commonly used discount rate for the total resource cost test and the program administrator cost test is the utility weighted average cost of capital (WACC). However, a review of cost-effectiveness screening practices by Synapse Economics and Woolf et al note that a lower rate than the WACC should be used to recognize the lower financial risk of efficiency investments, which can be quickly recovered through system benefit charges or through balancing accounts in rates.[35] They instead recommend using the interest rates on US Treasury Bills which are considered a good indication of low-risk investments, and are used by several states, including Massachusetts.

### 9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?

ACEEE lauds the recent legislation for creation of an Independent Advisory Committee in its energy efficiency program governance structure. Stakeholder processes offer an important opportunity to build stronger energy efficiency portfolios that better reflect the needs of different customer groups, leverage the knowledge and expertise of DSM business and service providers, and align program development

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[32] NEEP. 2017. *Non-Energy Impacts Approaches and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond*. neep.org/sites/default/files/resources/NEI%20Final%20Report%20for%20NH%206.2.17.pdf.

[33] Kubes, C. 2018. *Cost-Effectiveness Tests: Overview of State Approaches to Account for Health and Environmental Benefits of Energy Efficiency*. Washington, DC: ACEEE. aceee.org/topic-brief/he-in-ce-testing.

[34] Berg, W. & A. Drehobl. 2018. *State-Level Strategies for Tackling High Energy Burdens: A Review of Policies Extending State- and Ratepayer-Funded Energy Efficiency to Low-Income Households*. 2018 ACEEE Summer Study on Energy Efficiency in Buildings. aceee.org/files/proceedings/2018/index.html#/paper/event-data/p390.

[35] Woolf, T., W. Steinhurst, E. Malone, and K. Takahashi. 2012. Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for 'Other Program Impacts' and Environmental Compliance Costs. Montpelier, VT: Regulatory Assistance Project. synapse-energy.com/sites/default/files/SynapseReport.2012-11.RAP_.EE-CostEffectiveness-Screening.12-014.pdf.

and monitoring with public policy. Permanent committees are particularly useful for "providing general critiques of energy efficiency program design, owning specific tasks on behalf of the commission, and allowing a community of interveners to become familiar with the issues involved in energy efficiency program design."[36]

We recommend that the BPU define a clear objective or objectives, then track and report progress toward that goal. That shared purpose should be reflected in its activities, membership structure, and how its recommendations are used. The Clean Energy Act specifies a few roles for the Independent Advisory Committee, including evaluation of achievable energy efficiency and peak demand reduction requirements, review of rate adjustments, evaluation of quantitative performance indicators, and review of the process for evaluation, measurement and verification of energy usage reductions and peak demand reductions.

Approaches to collaboratives range from utility-led collaboratives designed to provide input on program design, like Georgia Power's energy efficiency process, to Arkansas Parties Working Collaboratively, which began as short-term exercise focused on quick-start energy efficiency, but was continued as a permanent collaborative because of its value,[37] to Rhode Island's Energy Efficiency and Resource Management Council, which oversees National Grid's energy efficiency programs, guides planning and budgeting, and monitors and evaluates the effectiveness of efficiency programs.[38] New Jersey is likely to require a more comprehensive approach, similar to Massachusetts, Rhode Island, Connecticut, and Illinois for such a broad mandate and set of substantive objectives.

As to membership of the committee, at a minimum, the Clean Energy Act requires participation from "the public utilities, the Division of Rate Counsel, and environmental and consumer organizations." Other groups worth considering include representatives of specific customer groups, such as residential customers, large end users, the manufacturing industry. In addition, businesses that conduct energy efficiency work in different sectors and their labor counterparts may be important, as they more directly interact with customers and the programs themselves. Some states include other departments as well: Massachusetts includes the department of environmental protection, the attorney general, the executive office of housing and economic development, and the state energy office in their group.[39] Finally, the committee should include experts in energy efficiency program design and evaluation, either from these groups, or through additional expert participants.

Collaboratives depend on the willingness of stakeholders to volunteer their time to participate, so the BPU should balance those time demands and ability to meaningfully engage with the importance of

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[36] *Energy Efficiency Collaboratives*, State and Local Energy Efficiency Action Network pg. 5, https://www4.eere.energy.gov/seeaction/system/files/documents/EECollaboratives-0925final.pdf

[37] Johnson, K. & M. Klucher, A*ll Together Now! How Collaboration Works in Arkansas*, Johnson Consulting Group & Arkansas Public Service Commission, http://www.johnsonconsults.com/presentations/IEPPEC%202014%20All%20Together%20Now%20AR.pdf.

[38] Abigail Anthony & William Ferguson, *Putting the Pieces in Place to Make Giant Leaps in Efficiency Investment: The Rhode Island Experience*, Environment Northeast & Council of Rhode Island, https://aceee.org/files/proceedings/2012/data/papers/0193-000255.pdf.

[39] Massachusetts Legislature. 2008. Green Communities Act, Section 22.

gathering diverse input. In addition to the members of the committee, the committee will need funding and ideally dedicated staff to support facilitation, evaluation and reporting of committee efforts, and any necessarily potential studies and technical reference manual development or modifications. SEEAction defines principles for successful collaboratives in more detail, including rules of the road, transparency and inclusivity, regular evaluation of efforts, and strong facilitation, as well as a clear relationship between the group and the commission.[40]

**10. How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?**

The Clean Energy Act specifies that each public utility achieve annual savings of 2% for electricity and 0.75% for natural gas to be met within five years of implementation of its programs. As a net incremental annual target, previously installed measures still producing savings as part of the Clean Energy Program and existing utility programs would not contribute to meeting targets, only savings from new measures installed.

With regard to building code measures and appliance efficiency standards and programs which might be state-managed going forward, savings from these efforts should be calculated and can contribute toward statewide goals, additive to but tracked separately from utility programs. We recommend that the BPU clearly designate an entity who is obligated to fulfill these responsibilities, and that there are agency performance metrics for these statewide efforts.

Utility performance against savings targets, quantitative performance indicators, and performance incentive should be based on the programs and portion of the statewide savings goals for which they are designated as the responsible entity. These may vary by utility.

In addition, utilities should be able to claim credit where they directly support statewide activities like codes and standards. Protocols for claiming and attribution of savings from utility Codes & Standards support activities are still an emerging field, but several states offer examples of approaches. The BPU should take steps to verify that C&S targets and savings are tied to actions and programs substantially supported by utilities, and not to general C&S statewide activities outside the scope of utility efforts. These measures may include EM&V studies and/or review by Delphi panels of industry experts to review factor weights. Methodologies range from the simple to more complex. Arizona has passed rulemaking authorizing utilities to count a pre-negotiated one-third of verified energy savings resulting from codes and standards support toward meeting the state's annual savings goals.[41] Utilities still have to demonstrate that the savings are being realized through an EM&V study, and document that they were involved in supporting the codes, but the exact attribution rate is predetermined. Other states such as California and Massachusetts have sought to create more robust methodologies to derive the level of utility-attributed savings based on estimates of code compliance and naturally occurring market adoption. While development and refinement of these protocols are still an ongoing discussion,

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[40] *Energy Efficiency Collaboratives*, State and Local Energy Efficiency Action Network pg. 5, https://www4.eere.energy.gov/seeaction/system/files/documents/EECollaboratives-0925final.pdf

[41] Docket No. RE-00000C-09-0427, Title 14, Chapter 2, Article 24.

California and Massachusetts have both published resources describing their respective methodologies.[42]

### 11. How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?

The performance incentives adopted by states generally fall into four different categories: a percentage of shared net benefits (12 states), incentives based on meeting pre-established energy savings goals (three states), incentives based on meeting multiple pre-established goals (nine states), and rate of return incentives (four states). PSE&G has proposed a return on its net energy efficiency investments based on return on equity and capital structure.[43] The proposed mechanism is not currently tied to performance on energy savings or other targets.

ROE incentives without performance metrics reward spending rather than actual energy efficiency results. For this reason, ACEEE has generally supported utility incentive mechanisms based on energy efficiency performance , in order to help encourage outcomes tied to goals. That being said, Illinois provides an example of a state that has combined a rate-of-return approach with performance criteria as a required qualification for approval of earnings. These incentives provide opportunities for increased return based on the level of savings achieved, and also include penalties for significantly missing targets. The ACEEE Policy Brief, *Snapshot of Energy Efficiency Performance Incentives for Electric Utilities*, provides additional information regarding how ROEs are adjusted each year based on third-party evaluation of the utility's energy efficiency portfolio.[44] So far the increase in utility energy efficiency spending by Illinois utilities has indicated that the state's new EERS and performance incentive structure are functioning as intended.

Policymakers have found that when basing incentives on achieved savings and shared net benefits, successful implementation requires strong evaluation frameworks and protocols that are integrated with performance incentive mechanisms. As such, cost-effectiveness and EM&V should be closely tied to structuring performance incentives.

Also important is the question of the scale of performance incentives. These should be set high enough to motivate utilities to meet targets while still providing cost-effective value to ratepayers. In determining this amount, almost all PIMs have been structured with (1) a minimum threshold savings

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[42] Mass Save. 2015. *Savings & Evaluation Methodology for Codes and Standards Initiative*. ma-eeac.org/wordpress/wp-content/uploads/Savings-Evaluation-Methodology-for-Codes-and-Standards-Initiative.pdf.; California Public Utilities Commission. 2017. *Findings from Review of the Process for Codes & Standards Program Cost-effectiveness Reporting*. http://www.calmac.org/publications/CS_CE-Report_FINAL_10-10-2017_with_comments.pdf.

[43] PSE&G. 2018. *In the matter of the petition of Public Service Electric & Gas Company for approval of its Clean Energy Future – Energy Efficiency, Clean Energy Future – Electric Vehicle and Energy Storage and Clean Energy Future – Energy Cloud Programs on a Regulated Basis.*

[44] ACEEE. 2018. *Snapshot of Energy Efficiency Performance Incentives for Electric Utilities*. Washington, DC: ACEEE. aceee.org/sites/default/files/pims-121118.pdf.

goal the utility must exceed in order to be eligible for earning an incentive and (2) a maximum amount or cap that can be collected. ACEEE analysis has found award amounts ranging from 4% to as high as 15% relative to efficiency costs—typically on a sliding scale such that higher rates are awarded based on savings levels exceeding targets.[45] Higher ratios and payout amounts were reported for performance incentives based on net benefits, possibly due to the fact that benefits are calculated over the full measure life rather than just for the first year. At whatever levels incentives are set, they should be tied to aggressive yet reachable goals.

Finally, incentives based on achievement of multiple goals should be considered. These can help focus utilities on other policy goals beyond the bounds of energy efficiency to help shape the type and quality of savings achieved, as well as encouraging extension of savings to underserved customers. For example, Michigan has a multifactor incentive in place for DTE and Consumers Energy, including not only savings-based metrics, but also program goals for expanding low-income programs, creating consistency in rebate amounts, promoting deep energy savings, and reducing peak demand.[46]

For more information regarding treatment of performance incentives in different state contexts and strengths and weaknesses associated with different types, please see ACEEE's 2015 report *Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency*.

**12. UNDER N.J.S.A. 48:3-88(3)(E), EACH ELECTRIC AND GAS PUBLIC UTILITY MUST FILE AN ANNUAL PETITION WITH THE BOARD TO DEMONSTRATE COMPLIANCE WITH ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS, COMPLIANCE WITH TARGETS ESTABLISHED PURSUANT TO THE QUANTITATIVE PERFORMANCE INDICATORS, AND FOR COST RECOVERY OF THE PROGRAMS. WHAT INFORMATION SHOULD THESE ANNUAL PETITIONS INCLUDE?**

Broadly speaking annual reports should provide a comprehensive account of energy and demand savings achieved, as well as program expenditures and the cost of saved energy, per NEEP's *Common Statewide Energy Efficiency Reporting Guide*.[47] The BPU should develop a standard reporting template to enable clear and uniform reporting across New Jersey's utilities and facilitate accurate data aggregation to track progress towards statewide goals. In addition, any remaining statewide programs should report on progress using similar templates to facilitate analysis of progress toward total statewide goals.

Reports should provide a multidimensional accounting of annual savings data that clearly documents underlying assumptions and adjustments. Savings should be provided on an annual incremental basis, meaning savings specifically achieved during the year that the program was run, and includes only savings attributable to that program. At a minimum annual reported savings should include:

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[45] Nowak, S. et al. 2015. *Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency*. Washington, DC: ACEEE. aceee.org/research-report/u1504.

[46] Consumers Energy Company and Michigan Public Service Commission, Settlement Agreement, Case No. U-18261, December 19 (Lansing: MI PSC, 2017). https://mi-psc.force.com/s/filing/a00t0000005pmNSAAY/u182610093

[47] NEEP. *Common Statewide Energy Efficiency Reporting Guidelines: Version 1.0*. Lexington, MA: NEEP. https://neep.org/file/1054/download?token=OHDutcHc.

- Net savings: These are changes in energy consumption or demand that are directly attributable to an energy efficiency program, separating out impacts that may result from free riders, weather, participant or non-participant spillover, or from previous-year programs. Net savings should be presented at both the portfolio and program level, and broken down by measure where applicable, including citations referencing studies informing any adjustments made. Program categories should be grouped into residential non-low income, residential low-income, and commercial & industrial. Other potential categories include multifamily, renter, and small business. Savings programs should also be grouped by fuel type: electric, gas, and other fuels such as fuel oil or propane. These savings should be presented alongside annual program-specific targets to illustrate the degree to which these were achieved.
- Gross savings: Changes in energy consumption that result directly from program-related actions taken by participants in an energy efficiency program, regardless of why they participated. A 2016 NEEP report provides a discussion of key issues and considerations, as well as a decision-framework for calculating and applying net and gross savings based on energy policy objectives.[48]
- Details regarding whether savings are tracking estimates based on a previous year's evaluation studies, or informed by current program year evaluation.
- Details regarding whether savings are reported at the generator level or meter level to clarify whether transmission and distribution line losses have been included in the calculation. If savings are reported at the meter, information should be shared regarding types of T&D adjustments performed.
- Additional information, citations, links, or appendices providing supporting data behind savings calculations, such as technical reference manuals, potential studies, and EM&V protocols.

In addition, reporting should include the following elements:

- Lifetime energy savings, both net and gross, should be reported for each program, including weighted average measure lives for each.
- Program and portfolio-level accounting of expenditures: These should make a clear distinction between spending on energy efficiency programs, and costs associated with other programs such as demand response, load management, or renewable energy programs. Reporting protocol for program expenditures should use the following categories: program administration and marketing costs, customer rebates and incentives, performance incentives earned by utility shareholders or PAs for achieving certain metrics, research & evaluation costs, and a separate category addressing other miscellaneous costs. These should be presented alongside each program's planned budget to identify deviations from anticipated spending.
- Number of participants per program, expressed both annually and cumulatively, and as a percentage of eligible customers.
- Reporting should also include the cost of saved energy per program, expressed in benefit-cost ratios according to each cost-effectiveness test employed as discussed in the response to Q8. The levelized cost of energy ($/kWh) should also be provided corresponding to each B/C test.

[48] NEEP. 2016. *Gross Savings and Net Savings: Principles and Guidance*. neep.org/sites/default/files/FINAL%20GS%20and%20NS%20Principles%20and%20Guidance%20Document_2016May17.pdf.

- For each program, additional description should also be provided to explain and factors contributing to deviations from targeted spending or savings, as well as changes or adjustments planned for the next program year.

The table below provides an example from Entergy Arkansas's annual demand-side management report showing a portfolio summary that clearly describes the adjustments made in verifying and evaluating the utility's annual gross and net savings.

| | |
|---|---|
| EAI's Gross Savings (*ex ante*) | 259,481 MWh[9] |
| As adjusted by Tetra Tech (*ex post*) | 278,307 MWh |
| As adjusted for Net-To-Gross ("NTG") and realization rate ("RR") ratios | 253,290 MWh |
| EAI MWh Targets adjusted for SD | 161,478 MWh |
| % of Target Achievement Based on Evaluated Energy Savings | 157% |

Finally, the BPU should make annual efficiency reporting by utilities easily accessible to the public in formats that allow for analysis. A few state PUCs have created separate web pages making all utility DSM reports available to download from one location, such as Pennsylvania's site tracking progress towards meeting savings targets under Act 129.[49]

## III. Conclusion

ACEEE appreciates this opportunity to provide comments and is available as a resource to discuss any of the issues raised herein or others that the BPU may be considering regarding the treatment of energy efficiency. We welcome further discussion on ways that ACEEE can help New Jersey utilize energy efficiency to strengthen the economy, create jobs, and reduce pollution.

[49] Pennsylvania Public Utility Commission. "Electric Distribution Company Act 129 Reporting," accessed February 2019, puc.pa.gov/filing_resources/issues_laws_regulations/act_129_information/electric_distribution_company_act_129_reporting_requirements.aspx.

**APPENDIX A: National Standard Practice Manual Efficiency Cost-Effectiveness Reporting Template (Version May 2017)**

# National Standard Practice Manual
# Efficiency Cost-Effectiveness Reporting Template

(Version May 2017)

| Program/Sector/Portfolio Name: | | Date: | |
|---|---|---|---|
| **A. Monetized Utility System Costs** | | **B. Monetized Utility System Benefits** | |
| Measure Costs (utility portion) | | Avoided Energy Costs | |
| Other Financial or Technical Support Costs | | Avoided Generating Capacity Costs | |
| Program Administration Costs | | Avoided T&D Capacity Costs | |
| Evaluation, Measurement, & Verification | | Avoided T&D Line Losses | |
| Shareholder Incentive Costs | | Energy Price Suppression Effects | |
| | | Avoided Costs of Complying with RPS | |
| | | Avoided Environmental Compliance Costs | |
| | | Avoided Bad Debt, Arrearages, etc. | |
| | | Reduced Risk | |
| **Sub-Total Utility System Costs** | | **Sub-Total Utility System Benefits** | |
| **C. Monetized Non-Utility Costs** | | **D. Monetized Non-Utility Benefits** | |
| Participant Costs | *Include to extent impacts are part of RVT* | Participant Benefits | *Include to extent impacts are part of RVT* |
| Low-Income Customer Costs | | Low-Income Customer Benefits | |
| Other Fuel Costs | | Other Fuel Benefits | |
| Water and Other Resource Costs | | Water and Other Resource Benefits | |
| Environmental Costs | | Environmental Benefits | |
| Public Health Costs | | Public Health Benefits | |
| Economic Development and Job Costs | | Economic Development and Job Benefits | |
| Energy Security Costs | | Energy Security Benefits | |
| **Sub-Total Non-Utility Costs** | | **Sub-Total Non-Utility Benefits** | |
| **E. Total Monetized Costs and Benefits** | | | |
| **Total Costs (PV$)** | | **Total Benefits (PV$)** | |
| **Benefit-Cost Ratio** | | **Net Benefits (PV$)** | |
| **F. Non-Monetized Considerations** | | | |
| Economic Development and Job Impacts | *Quantitative information, and discussion of how considered* | | |
| Market Transformation Impacts | *Qualitative considerations, and discussion of how considered* | | |
| Other Non-Monetized Impacts | *Quantitative information, qualitative considerations, and how considered* | | |
| **Determination:** | **Do Efficiency Resource Benefits Exceed Costs? [Yes / No]** | | |

COMMENTS OF ADVANCED ENERGY MANAGMENT ALLIANCE
IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040

FEBRUARY 15, 2019

Advanced Energy Management Alliance ("AEMA") thanks the Governor's office and Board of Public Utilities ("Board") for allowing stakeholder input to the state's energy efficiency and peak demand reduction programs; our organization attended and presented at the Public Meeting held on February 1, 2019 and have added to those comments herein. We also note that both AEMA and its member company Enel X North America provided oral and written testimony in October 2018 to the Energy Master Plan Committee.

## I. Introduction.

AEMA is a trade association under Section 501(c)(6) of the federal tax code whose members include distributed energy resource ("DER" or "DERs"), advanced energy management services and technology, and demand response ("DR") providers. AEMA also includes some of the largest energy customers in the country, which leverage these services. AEMA members support the incorporation of distributed energy resources, including advanced energy management solutions, to achieve electricity cost savings for consumers, contribute to reliability and resilience, and provide sustainable solutions for a modern electric grid. Recently, we note that PJM, the regional grid operator, recognized the value of demand response resources to keeping the lights on during the 2019 Polar Vortex that hit across New Jersey and beyond.

AEMA appreciates the opportunity to provide comments to the Board and recognizes that leadership from the Governor, Senate, Assembly, Board, and other state agencies has significantly driven the growth of distributed energy resources, in particular solar energy and demand response. AEMA believes that with the appropriate public policies, DER, including solar, energy storage, demand response, and advanced energy management, can--and should--play a significant role in New Jersey's clean energy future. These comments represent the collective consensus of AEMA as an organization, although they do not necessarily reflect the individual positions of the full diversity of AEMA member companies. Our comments are focused primarily on the Board's electric and natural gas peak shaving program development, although some comments also touch on broader elements of the Board's initiatives, including energy storage, advanced metering infrastructure ("AMI"), and data access.

## II. Types of electricity demand response.

There are already several forms of electricity demand response programs in operation across Northeast states. These include "peak shaving" state programs, which reduce peak load on the system so customers buy less electricity and put less stress on the distribution system at peak times. Pennsylvania's Act 129 is one example of such a program. The second type of demand response program implemented at a state level is "Non-Wires Solutions", which resolve distribution or transmission constraints, such as the Brooklyn Queens Demand Management ("BQDM") program. Third, grid operators, such as PJM, implement emergency/pre-emergency demand response programs based on preventing and managing emergency operations. Finally, a growing form of demand response is contributing to a bucket we will call generation and demand balancing and load shifting. These efforts are intended to utilize the grid more efficiently, including maximizing the use of intermittent renewable energy, and reducing greenhouse gas and other environmental pollution.[1] At the retail level, programs such as Massachusetts' nascent Clean Peak Standard has qualities that fit this category, as do state initiatives to shift electric vehicle electricity charging demand from peak to off-peak time.

## III. Key Recommendations.

1. **Pursue ambitious peak shaving programs, while also considering generation and demand balancing and load shifting programs**. The 2018 Clean Energy Act gives the Board broad powers to develop peak shaving programs for New Jersey for electricity and natural gas. Peak shaving is an important complement to the state's initiatives to expand intermittent renewable generation in wind and solar, and adopt energy storage. Considering the state's significant goals in these areas, the requirements set out in the 2018 Clean Energy Act should be considered baselines rather than end-points. Peak shaving programs can help the state achieve these clean energy goals more effectively. Generation and demand balancing and load shifting programs, which can also help reduce the peak, should be considered in addition to traditional peak shaving.
2. **Encourage complementary demand response programs that perform different functions in the energy system**. As we discuss, there are several forms of demand response programs in existence, including peak shaving, Non-Wires/Non-Pipes

[2] Massachusetts requires participants to shave peak regularly and in exchange, receive contracted revenue. For more information: https://www.mass.gov/files/documents/2019/01/31/2019-2021%20Three-

Solutions, emergency/pre-emergency DR, generation and demand balancing, and load shifting. These programs have different goals and can be compensated differently. A single customer can participate in multiple programs, which benefits that individual participant, but also all rate-payers.

3. **Launch an active and ongoing stakeholder process**. Communication among stakeholders is useful to gather relevant expertise and experience. We recommend the Board develop a stakeholder process facilitated by staff to receive input throughout peak shaving and energy efficiency program development.
4. **Include energy storage within the larger suite of approved measures.** Massachusetts is a leading state to recognize the value of storage in utility energy efficiency and peak shaving programs by including storage as an approved measure for 2019-2021.[2] Research by ACEEE suggests that customers with energy storage systems can often downsize equipment, saving energy.[3] Energy storage can also perform valuable peak shaving functions. New Jersey has already set an important target of 2,000 MW of energy storage by 2030. We encourage the Board to adopt Massachusetts-style peak shaving programs that compensate storage for its litany of benefits (including avoided wholesale capacity and energy costs). By compensating storage via these retail programs for the value it provides at both the wholesale and retail levels, this provides a transparent market signal to energy customers/developers to build in the state.
5. **Encourage further deployment of AMI.** AEMA members work with dozens of utilities across the country, leveraging the granular data from AMI to provide advanced energy efficiency and demand response programs to customers. This combination allows utilities to stack value on these distribution-system investments to provide documented operational benefits.
6. **Allow customers to share their data easily with third parties.** The Board should explore a single, cloud-based, secure software solution, which can be shared across the state. Green Button is one such solution.

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[2] Massachusetts requires participants to shave peak regularly and in exchange, receive contracted revenue. For more information: https://www.mass.gov/files/documents/2019/01/31/2019-2021%20Three-Year%20Energy%20Efficiency%20Plans%20Order_1.29.19.pdf

[3] For more information: https://aceee.org/topic-brief/eo-energy-storage

7. **Finally, the Board should implement performance-based rulemaking, with clear targets for DR, to incentivize utilities to pursue innovative programs, and to promote and serve as an active ally to third-party competitive energy service companies to implement distributed, clean energy solutions.** If utilities are not incentivized properly, it will be more difficult to achieve the state's energy goals.

## IV. Peak shaving creates job in the State.

An example of an AEMA member creating jobs in New Jersey is Centrica-Direct Energy, which has a significant presence in New Jersey, in part as a result of acquiring the Hess Energy Marketing business. To meet the energy resilience and energy performance needs of businesses and organizations around the world, Centrica created Distributed Energy & Power, which is now branded as Centrica Business Solutions. Centrica Business Solutions is headquartered in Iselin, with over 100 full-time employees, and, in 2017, finished construction of an innovative combined hat and power ("CHP") and backup generation production facility in East Rutherford.

Several other members of AEMA are doing business in New Jersey, including Enel X (formerly EnerNOC), which has increased its overall demand response capacity to 3.8 GW and is currently the largest DR aggregator of commercial and industrial ("C&I") customers in the Pennsylvania, New Jersey and Maryland markets. DR aggregation saves participants on their energy bill, while reducing the cost of electricity for all consumers on the system. Itron, the largest residential DR provider in the country, also works with Atlantic City Electric and houses its Distributed Energy Management ("DEM") data sciences office in Florham Park.

## V. Responses to select questions.

*1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?*

AEMA commends the Board for seeking input on best practices. As customer electricity demand, technology, and other factors evolve, it is timely for New Jersey to consider what type of a peak reduction standard is important for the state. AEMA members have experience implementing dozens of peak shaving programs for utilities across the United States. These include utilities in restructured states as well as in vertically integrated states.

Many states, such as Pennsylvania, have a traditional peak reduction goal, which is based on percentage decrease from typical peak demand. Other states, such as Massachusetts and Arizona, are developing "Clean Peak Standards" that are complementary to Renewable Portfolio Standards and incentivize curtailment or injection of qualified electricity resources at peak times.[4] We encourage the Board to monitor and explore development of a Clean Peak Standard.

Regarding traditional peak reduction programs, we can provide more background on existing programs in the region. Pennsylvania's Act 129[5] DR programs, operated by Pennsylvania Electric Distribution Companies ("EDCs"), are economic programs for residential and C&I customers. These customers are dispatched during periods of summer system peak and are intended to reduce costs for Pennsylvania consumers. Pennsylvania's programs began in Phase I of Act 129 from 2009 to 2013. In Phase III the state's programs were re-designed and launched for 2017 to 2021. In Phase III, each of the state's EDCs must meet separate goals. The goals were set through a cost-effectiveness study conducted by the Public Utility Commission's Independent Statewide Evaluator. Pennsylvania has projected the DR benefits to exceed costs at a ratio of 1.78.

Dispatches in Pennsylvania are based on day-ahead PJM conditions. The trigger is a day-ahead forecast of 96% of PJM's RTO peak load forecast. Thus, the utilities will generally know 24-hours before an event. New York's Con Edison has had peak-shaving programs for many years that are incremental to NYISO emergency programs. The benefit-cost ratio for Con Ed's programs was 1.82 in 2015 with $250 M in expected net benefits. As a result of the success of these programs, in 2016 the NYPSC ordered every utility in the state to create programs similar to Con Ed to start in summer 2017. The Eversource and National Grid programs in Massachusetts are examples of other existing programs.

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[4] For more information on Massachusetts see https://www.mass.gov/service-details/clean-peak-energy-standard
[5] For information about Pennsylvania Act 129, see http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_129_information.aspx

Maryland's EmPOWER program is another long-term, proven approach to delivering efficiency and peak reduction savings at scale. Since programs were first deployed in 2009, the program is estimated to have delivered Maryland customers over $8.4 billion in lifetime energy bill savings at very cost-effective levels.[6] The average lifecycle cost for the EmPOWER energy efficiency & conservation ("EE&C") programs has been $0.023 per kWh to date, and the average total resource cost ("TRC") test score is 2.08.[7] Utilities have been directed to deploy cost-effective demand response programs, but are not given a hard target. Even without a specific MW reduction target, Maryland utilities have developed some of the most successful DR programs in the country, especially those targeted at residential and small commercial customers. Pepco Maryland and Delmarva Power, for instance, have been able to deploy their mass market (residential) program on an opt-in basis to over 50% of the eligible customers in their Maryland service territories. Furthermore, utilities have been able to leverage their AMI investments to optimize their DR and EE programs incrementally, which has allowed for greater customer segmentation and increased program efficiencies over time.

New developments in markets such as Massachusetts, Rhode Island, California, Connecticut and New York, have encouraged utilities to address peak demand, often fueled by mass market customer air conditioning, through large scale residential DR programs where customers leverage connected devices they own (bring-your-own-device or BYOD) or are given by their local utility. These programs are able to leverage both EE and DR value streams, and devices customers are already interested in owning, to create compelling offerings for customers and reliable peak demand reductions for utilities. These programs have all passed cost-benefit tests once they reached scale and the BYOD programs require little upfront investment by the utility outside of the customer incentive.

**We recommend that the Board follow best practices in Massachusetts to include energy storage as an approved measure for energy efficiency and peak shaving value**. In 2018, the Clean Energy Group and Applied Economics Clinic reviewed the opportunity for storage to pass the TRC cost-benefit analysis and found that it scored 2.8 for low income and 3.4 for commercial. As a result of this and other analysis, the Massachusetts Department of Public Utilities approved storage as an approved measure and created several programs that offer

[6] The EmPOWER Maryland Energy Efficiency Act STANDARD REPORT of 2018, February 2018.
[7] Also of note, 40% of reported EmPOWER savings are achieved through AMI-enabled technologies.

contracted revenue to customers that peak shave regularly with energy storage. Massachusetts also allows these customers to stack incentives.[8]

*3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?*

**AEMA cautions against requiring a single statewide implementer.** Competition leads to the best results for ratepayers. Each utility territory is naturally different with a customer base that is different. Hiring a single company can represent a barrier to successful implementation and serve as an impediment to innovation. For the mass market, customer messaging is far more likely to be successful coming from a customer's own utility, or an independent device manufacturer or aggregator, compared to a separately branded, new statewide program. We suggest using the Pennsylvania model as an example of successful implementation via utilities. Utilities have the responsibility of hiring implementers and can choose who will bring most cost-effective results. When considering resources available statewide, we do believe both electric and natural gas resources should be taken into consideration; both peaks can be managed through demand response programs.

*4. How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?*

This question asks for best practices to get to the goals of low costs, optimal ease of use for customers, and maximal market utilization. First, as a best practice, **AEMA supports a three year or (ideally) longer program duration** to provide successful returns on initial investments and provide continuity to customers.

**AEMA members recommend different dispatch periods (advanced notice) for Commercial and Industrial customers compared to Residential customers**. For C&I customers, AEMA members have learned that dispatching large, energy-savvy customers for peak shaving on a day-ahead basis can result in over-dispatching since the forecast may vary

[8] For more information see: https://www.mass.gov/files/documents/2019/01/31/2019-2021%20Three-Year%20Energy%20Efficiency%20Plans%20Order_1.29.19.pdf

from real time conditions. On the other hand, for residential energy customers it makes more sense to provide a day-ahead notice to curtail effectively. **As a result, for C&I we recommend using a 2-hour ahead dispatch trigger, whereas for residential customers, a day-ahead trigger**.

In addition to programs for large energy customers, utilities should be asked to consider cost-effective and innovative programs for mass market customers, such as bring-your-own-device programs, which allow utilities to leverage connected devices, controlling significant load, that customers have already purchased as opposed to pursuing more traditional models such as direct install programs that require resource intensive truck rolls and maintenance. Since customers respond differently to incentive payments, we recommend that the Board allow flexibility to utilities to design incentives appropriate to specific customer classes and technologies, as needed to encourage technology adoption and curtailment.

Next, AEMA recommends allowing third-party energy service companies to place Energy Efficiency ("EE") MW savings into the PJM Reliability Pricing Model ("RPM") auctions. While some utilities may suggest that the utility is the one who should own the RPM value of EE, the regulated utility is unsuited to make market-based decisions and may even have a conflict of interest over ownership of the RPM value of EE. **Thus, as a matter of policy the Board should insist that the RPM value of EE should reside with the facility owner where the EE enhancement has occurred.** This will bring direct financial benefits to contractors and facility owners to maximize available funds for EE projects and insure maximum participation in the PJM EE Market. Energy service companies have proven experience submitting and monetizing EE projects while increasing job opportunities. Pennsylvania allows participation by energy service companies to monetize EE projects through the PJM RPM.

When it comes to natural gas demand response programs ("NG DR"), AEMA members implementing programs have found that these programs are similar to electric DR programs in many ways. Customer recruitment and education are key building blocks. **One lesson we have gathered is the need to focus resources on customer participation and education, and allow for programs to evolve in early years.** We recommend that the Board review the NG DR in existence now across four states: New York (Consolidated Edison and National Grid), Florida (Chesapeake Energy), Iowa (Alliant Energy) and California (SoCalGas).

*7. What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommended for sharing that data?*

AEMA commends the Board for including data access and sharing as part of this inquiry, and the most critical step utilities can take to maximize opportunities for EE and DR across the state through consumer data is to invest in the infrastructure that will provide that data at a level that allows for actionable insights. Certainly, EE and DR can be successfully deployed and developed at scale without AMI – and AEMA members have been able to manage consumers' energy without advanced metering – but AMI allows for a few critical advantages:

- **Time-targeted efficiency**: Not all efficiency measures are the same because not all kWh are the same. Having interval data will allow for efficiency measures to be measured not just on the number of kWh saved, but also on when they delivered the greatest benefit to the system.
- **Complementary Solutions**: A more granular view of program savings allows for multiple solutions – whether that is DR, efficiency, distributed generation, or solar – to help balance each other throughout the day.
- **Locational benefits**: There is not a more proven way of gaining visibility into the low-voltage network than deploying advanced metering and distribution-level communication technologies. Having that visibility into the network allows for the utility to understand demand constraints, voltage vulnerabilities, and the health of system assets in a way that encourages smarter and more strategic deployment of DR and DER resources.
- **Customer choice**: AMI allows for customers who want to understand their energy use better to make choices and investments that match their objectives, whether that is through their utility or through a third party.

To support the growth and diversification of innovative customer service in the mass market, the Board should help customers securely but simply share access to their utility related data, including incremental consumption data when that becomes available. **AMI deployment is foundational for the growth of competitive services and innovation that will bring capacity, and flexibility to the New Jersey market.** Already, California, Texas and Illinois have adopted

advanced enhancements to data sharing that allow customers to easily share their data with third parties, and reduce the friction for customers to participate in all forms of energy service offerings.

The Green Button Standard is a protocol for assuring a secure process for knowing customers to share their data with designated third parties. However, the proliferation of Green Button portals, all designed differently, is becoming a new barrier for commercial innovation and expansion of energy related innovations. Ideally the Board or another state agency would implement one cloud-based security software solution (or a limited number of competing solutions) to reduce the cost of supporting the function of customer authentication, authorization, and encrypted data transmittal, and reduce the barrier to new innovation for small companies with limited resources. One portal would be more functional and reduce the massive duplication and inefficiency of the current approach. Smart Meter Texas is an example of an earlier, still evolving, common platform serving the investor-owned utilities in Texas. The Board should encourage utilities to constructively explore such collaborative solutions.

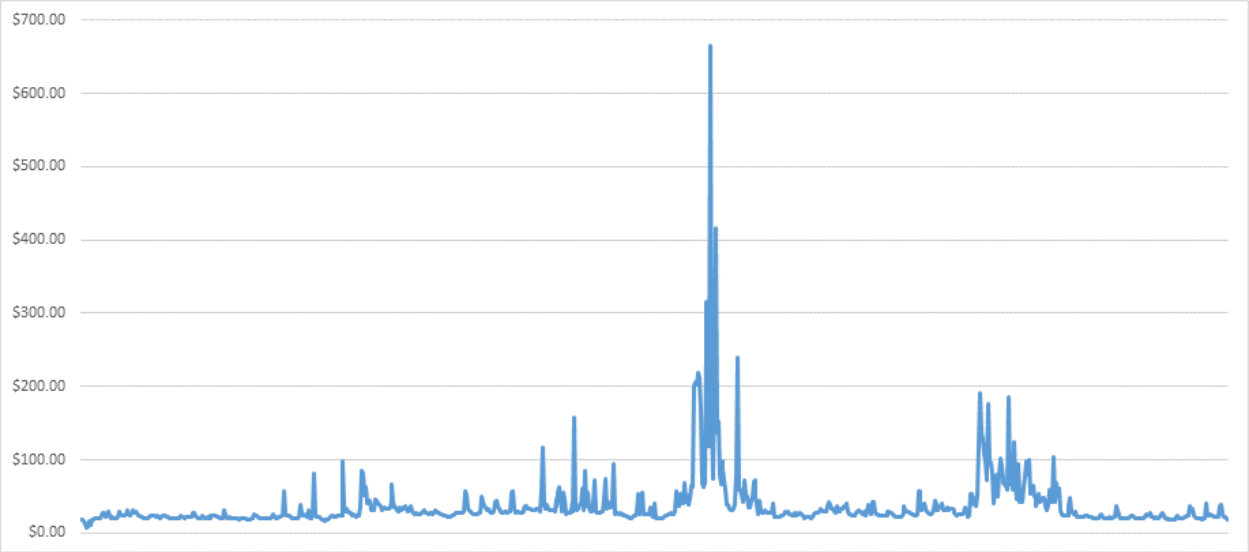
*8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?*

The Statewide Evaluator in Pennsylvania has historically developed electric Peak Shaving Potential studies. The methodology here considers costs and benefits, the benefits including capacity savings and transmission and distribution ("T&D") benefits. Pennsylvania does not include energy benefits or non-energy benefits such as carbon and other environmental benefits. **We recommend including all benefits – including energy and non-energy. This approach aligns better with New Jersey's approach to fighting climate change and also the uniquely high energy prices that ratepayers face in the state.**

**For natural gas demand response, the benefits should also include the downward pressure on electricity prices, deferred pipeline capacity, the cost savings from generators avoiding non-compliance charges for gas balancing rules, and others.** For example, real-time locational marginal pricing ("LMP") in New Jersey peaked last month over $664/MWh during the polar vortex as shown in Figure 1 below. Much of this price spike was due to the tight supply of natural gas during this cold spell. A natural gas demand response program could provide

greater fuel availability for power generation, thereby avoiding electric generation outages due to limited fuel availability, while also reducing electricity prices. To fully take advantage of NG DR, the Board should recognize the immense value that NG DR can provide.

**Figure 1. January 2019 Real-Time LMPs in PSEG Peaked at $664/MWh on January 21**




Source: PJM Data Miner 2

**For natural gas demand response, consider these programs for their long-term benefits and do not hold them to as rigorous benefit/cost analysis in the first year**. Many of the benefits and costs will become more known as programs are implemented and programs gather experience. Implementers will face basic questions such as: What customer classes are best targeted? Is NG DR a standalone program or as part of a fuel oil replacement or an electrification program? We suggest requiring each gas utility to implement a program with specific budgets that include significant consumer education and generous incentives for customers to participate.

As to the assumptions and methodology, a key element that must be considered is electric customer participation across programs. **New Jersey's study should assume and recommend that customers be allowed to participate in both wholesale and retail programs**. We have spoken about the different types of demand response. Ratepayers benefit the most when customers can participate in multiple types of demand response. Dual participation between state

peak shaving and PJM's emergency/pre-emergency demand response programs is the most useful complement for most of our customers in states that have both types of programs and allows DR to capture all of the values associated with it (reduced transmission costs, reduced capacity costs, reduced distribution costs, etc.).

Regarding dual participation, AEMA has a few comments. This year PJM developed a "peak shaving adjustment" product concept. This concept is still pending a Final Order at the Federal Energy Regulatory Commission (FERC). We recommend that the Board enmesh itself in learning about this concept. It may (or may not) be useful for New Jersey to participate through PJM's program. A key point is that ratepayers can receive benefit from using PJM's peak shaving program, but they can also receive value without PJM's program, just as states have been doing for years. **If PJM forces customers to choose between products rather than allowing customers into multiple DR/peak shaving products, it may be more beneficial for New Jersey ratepayers to design programs that stay out of PJM altogether.**

*9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?*

AEMA appreciates the opportunity to comment here as we think it is vital to the success of New Jersey's programs to support robust stakeholder participation and independent program oversight. It is important to note the difference between two concepts: (1) stakeholder participation, and (2) independent study and review.

First, AEMA interprets the legislation to require an independent advisory group. The legislation is explicit that representatives from utilities, the Rate Counsel, and environmental and consumer organizations shall be included**. AEMA strongly recommends that program implementers and end-use customers (such as AEMA's members), and other interested parties should also be welcome as part of this committee**. Indeed, as one option, New Jersey may follow the Pennsylvania example of Act 129 and make the independent advisory group synonymous with a regular stakeholder group that includes all parties with interest in the success of New Jersey's EE/DR programs. Thus, all parties are welcome to review the Board's plans and offer feedback.

**Second, we suggest the Board acquire an Independent Statewide Evaluator ("SWE") team using Pennsylvania again as an example**. In Pennsylvania, the utility commission issues RFPs every several years to acquire consultants that make up the SWE team. These consultants are truly independent from market participants and other interested stakeholders. The consultants have robust industry knowledge of EE/DR from experience overseeing programs throughout the country. The SWE team then performs the independent analysis needed to maintain the TRC test and the Technical Resources Manual, which form the basis of what is considered an approved measure and what the value of each measure is. Prior to each phase of the program, the SWE conducts an assessment of the feasibility of EE/DR for each utility territory. The Pennsylvania commission uses this information to issue Orders for each utility to comply with the law.

## VI. Conclusion.

AEMA appreciates the opportunity to submit comments for consideration by the Board. Please consider AEMA a resource in identifying specific policies and technology solutions for New Jersey. We are certain that the reliability, job-creation, cost-effectiveness, and emissions profile of DERs participating in these programs can provide benefits to all consumers while growing jobs and stimulating the economy in New Jersey. Please do not hesitate to contact AEMA should you have any questions regarding this filing.

Respectfully Submitted,

Katherine Hamilton
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February 15, 2019

Aida Camacho-Welch, Secretary of the Board
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton, New Jersey 08625-0350

Re: In The Matter Of The Implementation Of P.L. 2018, C. 17 Regarding The Establishment Of Energy Efficiency And Peak Demand Reduction Programs - Docket No. QO19010040

Dear Secretary Camacho-Welch:

Please accept the following comments of Airtech Vacuum in response to the January 22, 2019 Notice issued in the above-captioned proceeding.

Airtech Vacuum is a thirty-five-year-old New Jersey-born company employing over 145 individuals in medium and high salary positions. Airtech develops and manufactures extremely high-tech, custom designed air and fuel delivery systems for a variety of industries. The solid oxide fuel cell (aka "fuel cells without heat recovery") market is a main business line for Airtech and our New Jersey built products are currently included as component parts in solid oxide fuel cell systems that are deployed all over the world. Over the last ten years Airtech has experienced tremendous growth as a result of providing our proprietarily developed product to the fuel cell industry. The vast majority of our highly skilled workforce is dedicated to developing and manufacturing component parts for the solid oxide fuel cell industry.

The Board should be taking clean energy manufacturing jobs and the growth of the clean energy economy into account as it fashions its energy efficiency programs. Unfortunately, to date the New Jersey Board of Public Utilities has been opposing, not supporting, the growth of our clean energy manufacturing here in the Garden State. We hope that this proceeding can be the forum in which additional considerations, such as economic development, job retention, local air pollution, resiliency, and other values can begin to be incorporated into the Board's decision-making going forward.

The remainder of our comments are set forth as answers to the Questions posed in the January 22, 2019 Notice

*Q1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?*

Recently, leading states have taken action to specifically include fuel cells without heat recovery as an eligible measure in energy efficiency and demand reduction programs. These include the Massachusetts utility-administered energy efficiency programs supervised by the MA Energy Efficiency Advisory Council, the Public Service Electric & Gas of Long Island energy efficiency program, and the highly regarded Con Edison Brooklyn Queens Demand Management (BQDM) Initiative. Also, fuel cells without heat recovery are already being promoted in ten states using public benefits funds under programs that are not necessarily specified as energy efficiency programs but are offered in parallel with or in addition to energy efficiency programs.[1]

New Jersey is the only major state in the Northeast that specifically excludes fuel cells without heat recovery from all of its distributed generation programs. Importantly, the other states in the region are using fuel cells without heat recovery to increase customer and system efficiency and avoid transmission and distribution investments – irrespective of whether those facilities happen to have a matching thermal load sufficient to support a CHP project.[2] New Jersey should reconsider its exclusionary approach and instead adopt the best practices utilized in other jurisdictions.

*Q2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?*

The Board should take into account economic development and particularly the growth of the clean energy economy in its program decision-making. The comments submitted in advance of the June Board meeting included multiple instances in which other fuel cell companies, suppliers, customers, and organizations indicated that the exclusion of fuel cells without heat recovery was having a negative economic impact on their businesses or organizations. In response the BPU Order stated that "*job retention in and of itself is not one of NJCEP's primary or secondary objectives*." (June 22nd Order at 20).

This is another area where New Jersey's CHP/FC program diverges significantly from other jurisdictions. Whereby New Jersey is refusing to do so, currently other states are embracing clean energy as an opportunity to attract economic development. For instance, "growth in the state's clean energy economy" is one of the principal objectives of New York's Clean Energy Fund.[3] New Jersey BPU should similarly make growing the clean energy economy in New Jersey one of its principal objectives and a good place to start would be to recognize and support the ecosystem of New Jersey companies involved in the development and deployment of solid oxide fuel cells.

Very truly yours,

Tom Latsos, CEO

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[1] Connecticut, Vermont, Maine, Illinois, Pennsylvania, Ohio, New York, Delaware, Maryland, and Massachusetts.

[3] https://www.nyserda.ny.gov/About/Clean-Energy-Fund

BICEP Network Members:

Adobe
Annie's Inc.
Aspen Skiing Company
Autodesk, Inc.
Aveda
**Ben & Jerry's**
Burton Snowboards
**CA Technologies**
Clif Bar & Company
Dignity Health
eBay Inc.
**Eileen Fisher**
Etsy, Inc.
Fetzer Vineyards
**Gap Inc.**
General Mills, Inc.
**Hackensack Meridian Health**
**IKEA**
**JLL**
KB Home
**Kellogg Company**
**Levi Strauss & Co.**
**Lbrands**
LinkedIn
**L'Oreal USA**
**Lyft**
**Mars Incorporated**
**Microsoft**
Nature's Path Foods
**Nestlé**
New Belgium Brewing
**Nike**
**The North Face**
Outdoor Industry Association
**Owens Corning**
Patagonia
Portland Trail Blazers
Salesforce
Seventh Generation
San Francisco International Airport
Sierra Nevada Brewing Co.
Squaw Valley
**Starbucks**
Stonyfield Farm
Symantec Corporation
Timberland
**Unilever**
**VF Corporation**
Vail Resorts
Vulcan, Inc.
Worthen Industries

***Companies listed in bold have operations in NJ***

Ceres
*Sustainability is the bottom line.*

February 15, 2019

State of New Jersey
Board of Public Utilities
44 South Clinton Ave, 3rd Floor, Suite 314

**RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

Dear Secretary Camacho-Welch:

I am writing to you on behalf of the Ceres BICEP (Business for Innovative Climate and Energy Policy) Network – a coalition of more than 50 major employers and large electricity customers across the United States, including many with significant operations and facilities in New Jersey.

Businesses across New Jersey and the nation are increasingly setting goals to cut emissions, invest in clean energy, and reduce energy use. These commitments not only benefit public health and the environment, but they also make business sense. A 2017 Ceres analysis shows that renewable energy and energy efficiency investments save U.S. companies $3.7 billion a year, freeing up significant capital that they can reinvest into their employees, research and development, and operations.[0] Clean energy resources also help businesses hedge against volatile fuel prices while remaining competitive in a market where customers, investors, and employees increasingly expect companies to lead on sustainability. Energy efficiency is the most cost-effective energy resource and essential to achieving greenhouse gas reduction goals.

I write to express our business coalition's support for advancing energy efficiency programs in the Garden State. As you evaluate next steps to implement the *Clean Energy Act*, the Ceres BICEP Network encourages you to consider the following recommendations to support energy efficiency investment and growth.

First, we encourage New Jersey to establish a strong and transparent process for businesses, energy efficiency experts, state agencies, regulators, utilities, residential, low-income and other interested stakeholders to provide regular input into utility energy efficiency programs, plans, and performance filings. Stakeholder processes implemented in other states, such as Connecticut, Massachusetts, and Rhode Island, have led to the development of cutting-edge programs and have helped diverse constituencies find common ground with broad support for cost-effective energy efficiency actions.

Second, protocols for the cost-effectiveness evaluation of energy efficiency investments should be improved by considering all of the benefits that energy efficiency provides (including non-energy benefits and emissions reductions) and calculating cost-effectiveness at the sector or portfolio levels. Further, evaluation practices and technology have advanced to the point that regulators should consider

more timely, direct measurement of program and project performance. For instance, simple, temporary pulse meters could be used to verify project performance ensuring timely and accurate attribution of savings achieved.

Third, policy frameworks should include performance incentives that encourage utilities to accelerate energy efficiency investment.[1] Utilities are well positioned to assist their customers in learning about and deploying energy-saving technologies, and require increased incentives and accountability for doing so.[2] The American Council for an Energy Efficiency Economy recommends that incentives be based upon the achievement of energy savings targets.[3] The performance incentive developed in Massachusetts - the nation's leader for energy efficiency - is one of the "most sophisticated" mechanisms developed to-date and shows how performance incentive mechanisms can be designed to target multiple policy goals.[4]

Fourth, solutions such as full revenue decoupling should be considered to align utility and customer interests. In our present utility business model, utilities realize a "penalty" to their revenues by encouraging the deployment of policy objectives such as increased energy efficiency.[5] This creates an inherent conflict that requires solutions. Decoupling breaks the link between energy sales and revenue, and provides one solution to consider.

Fifth, regulators should consider alternative and effective mechanisms for financing efficiency upgrades. For instance, on-bill repayment enables utility customers to pay off the customer share of efficiency investments through payments on the utility bill. This mechanism encourages deeper efficiency upgrades with longer payback periods since payments may be able to stay with the meter when a building is sold to a new owner. Likewise, New Jersey should consider piloting the Metered Energy Efficiency Transaction Structure (MEETS) recently approved by regulators for 30 commercial customers of Seattle City Light. The MEETS model holds significant promise because it meters energy savings alongside customer power use, aligning utility and customer incentives for efficiency upgrades. For residential customers, including renters, New Jersey should consider offering positive cash flow approaches such as a "Pay as You Save" (PAYS) program. Already successfully demonstrated by a number of electric coops, PAYS abandons debt financing of efficiency upgrades in exchange for a voluntary on-bill tariff. Residential customers reduce their bills and get improved comfort; the utility is fairly compensated for reducing energy waste.

Finally, utility tariffs should be designed to support price signals and policy-driven objectives like increased energy efficiency investment.[6] Customer-friendly time-of-use rates should be developed

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[0] Power Forward 3.0: How the largest U.S. companies are capturing business value while addressing climate change, https://www.ceres.org/resources/reports/power-forward-3

[1] Pathway to a 21st Century Electric Utility, https://www.ceres.org/sites/default/files/reports/2017-03/Ceres_ElecUtilityIndustryModel_110615-rev2-1.pdf

[2] Ibid.

[3] The 2018 State Energy Efficiency Scorecard, https://aceee.org/sites/default/files/publications/researchreports/u1808.pdf

[4] New Regulator Models, https://westernenergyboard.org/wp-content/uploads/2014/03/SPSC-CREPC_NewRegulatoryModels.pdf

[5] Pathway to a 21st Century Electric Utility, https://www.ceres.org/sites/default/files/reports/2017-03/Ceres_ElecUtilityIndustryModel_110615-rev2-1.pdf

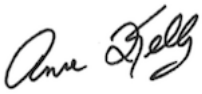
[6] Ibid.

*For more information, contact Matthew Willner, Senior Associate for State Policy at Ceres: willner@ceres.org*

and implemented to manage peaks and enhance system optimization.[7] Additionally, the policy of adopting increases in monthly fixed-charges should be seriously examined as it has several flaws, including the removal of the price signals to encourage energy efficiency.[8]

Thank you for supporting energy innovation in New Jersey. Please do not hesitate to call on us if we can provide additional information and share our experience as this important public process progresses.

Sincerely,



Anne Kelly
Senior Policy Program Director, Ceres
On behalf of Ceres BICEP Network

[7] Ibid.

[8] Ibid.

*For more information, contact Matthew Willner, Senior Associate for State Policy at Ceres: willner@ceres.org*

February 15, 2019

State of New Jersey
Board of Public Utilities
44 South Clinton Ave, 3rd Floor, Suite 314
P.O. Box 350
Trenton, New Jersey 08625-0350

**RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

Dear Secretary Camacho-Welch:

Please find enclosed Natural Resources Defense Council, Environmental Defense Fund, and New Jersey League of Conservation Voters' comments in the above-captioned proceeding. Thank you for your consideration of these comments.

Respectfully submitted,

Miles Farmer
Staff Attorney
Climate and Clean Energy Program
Natural Resources Defense Council

Ada Statler
Schneider Fellow
Climate and Clean Energy Program
Natural Resources Defense Council

Mary Barber
New Jersey Clean Energy Director
Environmental Defense Fund

Ed Potosnak
Executive Director
New Jersey League of Conservation Voters

## I. Introduction

Thank you for the opportunity to provide feedback in the Matter of the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs. The undersigned parties (collectively "Energy Efficiency Advocates") provide these comments to support the New Jersey Board of Public Utilities (BPU) in enabling the state to reach the energy efficiency targets outlined in the Clean Energy Act as signed into law on May 23, 2018 in a cost-effective, timely, and equitable manner.

The Clean Energy Act was passed with an understanding that climate change is a real and urgent issue, and the goals it set into law across the energy sector promised to put New Jersey in a leadership role in addressing climate change. The International Panel on Climate Change report, issued in October, finds that if we don't take sweeping, collective action in the next 12 years to limit global warming to 1.5 degrees Celsius by 2040, the consequences will be widespread and largely irreversible[1]. Energy efficiency will be a crucial component of cutting greenhouse gas emissions in New Jersey, but also in helping the state reach its "50x30" clean energy goal, as well as its target of 100 percent clean energy by 2050, as outlined by Governor Murphy's executive order on New Jersey's Energy Master Plan update.[2]

We are excited about the prospects of New Jersey's ambitious energy savings goals in fostering this clean energy transition. We commend the mandated minimum annual reductions for each electric public utility of two percent of average annual usage, and 0.75 percent of average annual usage for each public gas utility, each within a five-year implementation period. We

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[1] "Special Report: Global Warming of 1.5 C," Intergovernmental Panel on Climate Change, 2018, https://www.ipcc.ch/sr15/.

[2] Executive Order No. 28, Governor Phil Murphy, May 23, 2018 https://nj.gov/infobank/eo/056murphy/pdf/EO-28.pdf.

commend the BPU for its commitment to meeting these goals on the ambitious timeline outlined in the Clean Energy Act, and thank the BPU for its efforts to foster a robust stakeholder process.

These comments draw from our coalition's combined experience in New Jersey and the design of energy efficiency programs in other states to outline steps to most effectively implement the Clean Energy Act. We address many of the questions as posed by the BPU, but most importantly emphasize three critical program design elements that will be integral to the success of New Jersey's energy efficiency efforts:

- Efficient division of energy efficiency roles in order to reach savings goals as smoothly as possible—**the BPU should provide oversight, coordination, and guidance** on energy projects to leverage its expertise, and **utilities should be responsible for program design, and implementation** given their ability to quickly scale up staffing capabilities and their legal obligation to meet the targets.
- **Carefully designed rates and incentive structures** to make the savings targets in the Clean Energy Act a true minimum and not a ceiling, and to reach these minimums at least cost and with full and inclusive participation.
- A systems perspective in all elements of program design that **values energy efficiency's many societal and energy benefits** (from grid services and participatory equity to avoided emissions) and not just direct volumetric savings.

## II. Responses

**1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

We appreciate the BPU's commitment to examining best practices from other states and applying lessons learned in New Jersey. The BPU is also correct to ask, in particular, about specific practices rather than complete programs to serve as a model for New Jersey. The context in a given state affects the efficacy of a given design element, so no single comprehensive model should be imported in its entirety. With this understanding, however, there are still some particularly strong program design elements in states similar to New Jersey and common practices shared among the most successful programs that serve as strong models for the BPU to consider.

Most importantly, New Jersey should 1) adopt an administrative structure that places BPU in a coordination and oversight role with the utilities as the key program administrators, and 2) implement full revenue decoupling paired with performance-based incentives, as has been proven successful by the top achieving states in energy efficiency savings. We prioritize these two program design elements because the utilities charged with energy savings mandates must be given the tools and appropriate regulatory and market structures to reach these mandates. The incentives to view the targets not as a burdensome ceiling, but rather as a starting place. Given the utilities' ability to quickly scale up program administration capabilities through increased staffing, putting utilities in the program implementation role is the best way to ensure that New Jerseyans of all customer classifications are able to enjoy the many benefits of energy efficiency.

Energy efficiency governance structures that designate utilities as program administrators and state agencies as oversight and program coordinators have seen substantial success in other

states—including in states that, similar to New Jersey, have ambitious clean energy programs across the board and thus limited capacity at the agency level to dedicate to implementing energy efficiency programs. Indeed, the advantages of utility administration are particularly helpful to providing customers low-cost service in such settings while still meeting ambitious targets.

These advantages include utilities' built-in relationships with customers, existing technical and administrative expertise, access to data and systems-level perspective on efficiency needs. Efficiency must be a part of the utility-level resource planning process if it is to be viewed and valued as a multi-dimensional resource, and if its cost-effectiveness is to be determined not in isolation, but in coordination with other clean energy efforts to form a complementary overall portfolio. This systems viewpoint is implicitly present in the Clean Energy Act's omnibus nature. In such a structure, state regulators maintain a clearly defined oversight role and well-understood authority over the utilities, providing clear and effective guidance and ensuring the most inclusive cost-effective route is taken.

A number of states provide examples of effective implementation of this structure, including, for example, California, Minnesota, and Connecticut. These states' success demonstrates that utility-administered energy efficiency programs paired with state assistance can deliver cost-effective solutions and minimize administrative costs. In California, the state commission runs oversight of utility programs while participating in a number of non-utility efficiency efforts, such as job training and research & development. Minnesota's state agency involvement with efficiency is similar, and also includes a substantial amount of coordination with city governments. In Connecticut, state agencies spearhead efficiency projects in public buildings and provide additional grants for low-income projects, while leaving the bulk of program

implementation to the utilities.[3] We recommend that the BPU's role include critical responsibilities to statewide success such as ensuring shared learning across the utilities, encouraging and facilitating consistent programs as possible and as needed, and taking the lead on oversight and compliance tasks such as quality control and Evaluation, Measurement, and Verification (EM&V) processes.

Second, the delivery of successful energy savings programs should be encouraged by decoupling utility profit from the amount of energy sold, and by providing performance-based utility shareholder incentives that reward effective and rapid expansion of cost-effective efficiency measures.

Decoupling removes disincentives to pursuing energy efficiency. While decoupling in itself is not sufficient to ensure savings targets are met, it removes a key barrier to scaling up energy efficiency and must be part of a comprehensive energy efficiency framework. The essential nature of decoupling is illustrated by the fact that all the leading states listed by the BPU, as well as all other states rounding out the American Council for an Energy Efficient Economy's top ten energy efficiency achievers, have adopted decoupling policies for electric and gas utilities.[4] The Clean Energy Act sets the stage for decoupling policies to be paired with utility performance metrics—equipping utilities with the tools to carry out the state's critical vision. In the Clean Energy Act, New Jersey for the first time has the complementary policy package that, combined with decoupling, can promote large scale energy savings through energy efficiency. Best practices for such policies have been explored by a number of states, including in a guide created by New York's Clean Energy Advisory Council that explains how breaking the link between recovery of

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[3] American Council for an Energy Efficient Economy "State Scorecard."
[4] American Council for an Energy Efficient Economy (ACEEE), "The State Energy Efficiency Scorecard," https://aceee.org/state-policy/scorecard.

fixed costs dependent on the volume of utility sales, in combination with regular, small rate adjustments set by regulators, can pair with performance-based incentives for energy efficiency programs to save customers money.[5]

**2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?**

Defining cost-effective potential is difficult without first answering the question: for whom? The answer to this question—and as a result, the definition of costs and benefits – should be as inclusive as possible. We provide more detailed recommendations for defining cost effective potential will be addressed elsewhere in response to question 8 (where we recommend a method for implementing the resource value framework and associated benefit-cost tests). Most importantly, the BPU should define full economic, cost effective potential in a manner that incorporates the costs and benefits for all market participants in a symmetric fashion, including societal factors. Potential assessments must comprehensively assess opportunities across all customers types, utilities, and energy efficiency providers.

Additionally, we urge the BPU to remember that if costs are being defined broadly, benefits must be examined on equal footing. This is essential to properly jumpstart energy efficiency programs given the large breadth of benefits efficiency savings provide – from grid service improvements at peak times to kilowatt savings to avoided emissions and environmental health hazards. Such a framework can and should also recognize the equity and quality-of-life benefits of energy efficiency improvements in low-to-moderate income households that have historically

[5] New York Clean Energy Advisory Council (CEAC) guidance documents, http://www3.dps.ny.gov/W/PSCWeb.nsf/All/255EA3546DF802B585257E38005460F9?OpenDocument.

experienced disproportionately high energy burdens, especially in peak summer and winter periods when efficiency gains can make the most significant difference.

3. **What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?**

Energy efficiency is an economy-wide need, and so a successful implementation of the Clean Energy Act must be as inclusive as possible of all markets statewide. As previously described, we believe the most effective allocation of resources to achieve this goal is to place program administration duties with the utilities, and to task the BPU with oversight, coordination, guidance, and compliance. Utilities already understand and interact with a variety of market participants, and it is most efficient to continue to leverage these relationships and build on the existing implementation expertise while providing a single interface point for customers.

Energy efficiency programs should include specific provisions focused on Low-Moderate Income (LMI) households, with clearly defined income levels to ensure that low-income households receive a just, and considerable, percentage of the benefits. With some low-income households spending nearly 20 percent of their income on utility bills, this market cannot be neglected. The energy burden facing low-income households poses a significant equity concern: low income households, many of which are in older buildings with poor ventilation and aging, inefficient appliances and heating systems, spend, an average of 7.2 percent of their income on utility bills, which amounts to about $1,700 annually out of $25,000 median household income.

That is more than triple the 2.3 percent spent by higher-income households for electricity, heating and cooling.[6]

Yet, low-income customers face numerous barriers to participation in efficiency programs. This makes well-designed, specifically targeted efficiency programs for low-income customers a crucial topic to consider during this process. With this inequity in mind, the BPU should set robust and aggressive goals for energy efficiency delivered to low-income customers. States have taken a variety of approaches to goal setting for low-income programs, including portfolio requirements, spending requirements, "bill-neutral" on-bill recovery programs, and portfolio savings carve-outs for low-income programs, similar to what's been done in Illinois, Maine and New York.[7] We recommend that the BPU review each of these methods and engage in discussion with utilities about which mechanisms might be most appropriate for LMI customers in their service territories—noting that the needs of LMI customers in each territory may vary based on a range of factors, including the physical nature of their housing situations.

In addition, to monitor and evaluate these programs, we recommend that the BPU convene a stakeholder group to ensure that programs are well-designed to meet the needs of low-moderate income customers. This ensures that the programs outlined are monitored and evaluated, with the input of relevant stakeholders. We also urge the BPU to work with the administration to slow and stop diversions from the Clean Energy Fund, which is designed to deliver energy efficiency and weatherization improvements for households.

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[6] "Lifting the High Energy Burden in America's Largest Cities," Energy Efficiency for All and the American Council for an Energy Efficient Economy, 2016 http://energyefficiencyforall.org/resources/lifting-high-energy-burden-americas-largest-cities.

[7] "Energy efficiency and renewables in lower-income homes," National Conference of State Legislatures, Feb 2017, http://www.ncsl.org/research/energy/energy-efficiency-and-renewables-in-lower-income-homes.aspx.

**4. How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?**

The pairing of utility administration with decoupling and effective performance incentives as discussed in response to question 1 is the clearest way to ensure programs are delivered at the lowest cost to customers while providing for easy and fuller access to energy efficiency savings across market participants. In this paradigm, the proper policy design elements to support energy efficiency work can be portrayed as the "three-legged stool" often discussed by energy experts, federal agencies, and efficiency advocacy groups. Each leg— recovery of direct program costs, recovery of lost contributions to fixed costs through mechanisms like decoupling, and earning opportunities based on exemplary performance -- addresses a different barrier to utility-driven energy efficiency efforts. The Clean Energy Act of 2018 includes provisions that address all three of these legs, ensuring that utilities can file for prudent recovery of program costs and revenue losses associated with sale loss from a number of measures (including, but not limited to, energy efficiency and other demand-side measures) and will be subject to financial incentives and penalties related to program performance.

Decoupling implements the second leg, by removing the disincentive from decreasing sales. The "throughput" incentive to maximize sales under a non-decoupled model arises from the fact that utilities recover both "variable" and "fixed" costs through volumetric rates, and as a consequence will receive lower revenues with lower sales. Full decoupling policies have been found to be more effective in achieving energy savings than related policies called Lost Revenue Adjustment Mechanisms (LRAM).[8] And on the question of customer cost, decoupling can be

[8] "Valuing Energy Efficiency: A Review of Lost Revenue Adjustment Mechanisms," ACEEE, Annie Gilleo, Marty Kushler, Maggie Molina, and Dan York, June 2015. https://aceee.org/research-report/u1503.

designed with protective "true up" measures that can add modest credits or surcharges to customer bills if the utility over- or under-collected. Empirically, revenue decoupling usually results in less than a three percent change in a customer's bill each period—and is most often much less. Nearly 40 percent of these "true up" adjustments have been in the form of customer refunds.[9]

Financial incentives and minimum savings targets like those in the Clean Energy Act implement the third leg of the stool. This leg does not address "throughput"-related issues, but rather incentives arising from the treatment of supply-side versus demand-side additions under traditional ratemaking. Under traditional regulation, investor-owned utilities earn returns on capital invested in generation, transmission, and distribution. They do not see a similar opportunity to profit from the energy efficiency investment. Providing financial incentives to a utility if it delivers stronger energy efficiency performance makes efficiency a similarly profitable activity to traditional supply-side alternatives. Because investing in energy efficiency is better for society than investing in traditional T&D infrastructure or generation, shareholders should be rewarded at least as much for efficiency investments as they are for such traditional investments. Such an incentive structure is integral to stimulating utility leadership to commit their companies to investing heavily in energy efficiency.

**5. What is the best way to minimize administrative costs and avoid duplicative administrative structures?**

In examining New Jersey's clean energy progress over the last several decades and acknowledging the magnitude of non-energy efficiency goals that the BPU is balancing in its clean energy portfolio under the Clean Energy Act, we believe that the best way to minimize

[9] "A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs, and Observations," Pamela Morgan, Dec 2012.

administrative costs is to rely on expertise and operational infrastructure that already exist in-house in utilities. In tackling goals of this ambition level, it is most efficient to continue to leverage these resources while providing a single, non-duplicative interface point for customers. We note here that unlike the development of offshore wind or other large-scale projects, administering energy efficiency programs often requires interfacing with customers at a more individual level, which is a role that utilities and their experienced third-party providers are uniquely suited to fulfill.

**6. What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?**

California shows that transitions from agency-administrated programs to utility-administrated programs can be carried out smoothly and ultimately improve customer bill and savings outcomes. In the California example, a period of administrative uncertainty during which the Public Utilities Commission retained an outsized role in utility program design and selection led to the delay of energy efficiency savings in the early 2000s following market restructuring. In 2005, however, California increased the priority level of energy efficiency. With this strategic shift, the state also changed its governance structure to maximize outcomes. Specifically, the utilities were allowed to administer their own program portfolio, but the Commission provided oversight and guidance, with accountability measures in place to reach targets. Implementation, design, and delivery of the programs was the responsibility of utilities, who could also work with local governments and nonprofits as made sense to ease the transition for customers. For the first two years of the transition, advisory groups assisted the utility administrator in ensuring a transparent decision-making process. The BPU can serve a similarly essential role (or create a group for this purpose) in the transition to utility administration of programs.

**7. What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommend for sharing that data?**

When it comes to information gathering, knowledge is the doorway to successful oversight and compliance as outlined in the vision we hold for BPU role. Benchmarking a customer's or a building's energy usage (as mandated for buildings over 25,000 square but also useful in a range of building types) is often the first critical step in opening this doorway. Armed with such information, customers and building owners will be better able to evaluate energy efficiency options and make more informed decisions, while also delivering vital information to the BPU and utilities to measure progress towards the achievement of the state's energy efficiency goals.

We can only manage what we can measure. Stated differently, for data to be beneficial and useful, it is essential for it to be accessed and managed. In this regard, data access is indispensable to customers in making informed energy decisions. Historical monthly data from legacy meters as well as continuous and granular interval data from smart meters are fundamental to identifying energy efficiency and clean energy opportunities, evaluating performance of energy upgrades and utility programs. For instance, research shows repeatedly that today's customers still struggle to understand the full financial picture of energy efficiency related upgrades.[10] This poses a key barrier for customer adoption of these measures and by extension achieving the state's energy efficiency goals. Access to energy data can empower customers with the choice and control to manage their energy use and costs.

Data access is not only critical to realizing utility bill savings and broader energy efficiency policy goals, but also responds to the overarching shifts underway across the electric industry. As the electric system becomes more decentralized, dynamic, and interactive we need to ensure that

[10] Smart Energy Consumer Collaborative, Consumer Values: Moving the Needle on Engagement Report (January 2019), available at: https://smartenergycc.org/consumer-values-moving-the-needle-on-engagement-report/

customers can actively participate in that transformation and accrue the benefits and opportunities this transition presents. Data access plays a key role in realizing a more efficient and cleaner electricity system that can smoothly integrate and orchestrate emerging distributed energy resources ("DER") such as wind, electric vehicles and rooftop solar. In addition, data access can spur the development and adoption of innovative technologies, products and services designed to support consumers in managing energy consumption and expenditures including demand response, energy efficiency, and conservation programs.

Equipping customers with meaningful and user-friendly access to energy usage data in order to take advantage of the unprecedented energy choices this transition creates, is foundational to meeting the growing consumer expectations[11] and energy efficiency goals.

Fortunately, customers are interested in what today's innovative technologies and services have to offer.[12] More customers want to be connected on the go, and are pushing for more transparency and control over their energy usage. In this context, innovative third-party products and services can provide tremendous support to customers navigating this evolving energy landscape by translating data points into actionable and personalized insights and potential dollar savings. Customers should have the ability to share that data seamlessly with a third-party of their own choosing in a standardized format. To this end, the industry standard Green Button Connect My Data ("GBC") should be considered as the primary pathway for offering secure, convenient, and standardized methods to access and share data. As New York's largest electric utility,

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[11] Accenture, The New Energy Consumer (2017), available at: https://www.accenture.com/t20171113T063921Z__w__/us-en/_acnmedia/Accenture/next-gen-5/insight-new-energy-consumer-2017/Accenture-NEC2017-Main-Insights-POV.pdfla=en#zoom=50

[12] See Smart Energy Consumer Collaborative, Data Analytics: Unlocking the Consumer Benefits (September 2018), available at https://smartenergycc.org/data-analytics-unlocking-the-consumer-benefits-report/; Accenture, The New Energy Consumer (2017), available at: https://www.accenture.com/t20171113T063921Z__w__/us-en/_acnmedia/Accenture/next-gen-5/insight-new-energy-consumer-2017/Accenture-NEC2017-Main-Insights-POV.pdfla=en#zoom=50; Smart Grid Consumer Collaborative (2016), *The Empowered Consumer*, available at: http://smartgridcc.org/research/sgcc-research/sgccs-the-empowered-consumer-report-summary/

Consolidated Edison, stated in their advanced metering infrastructure ("AMI") plan, it "is not aware of any alternatives that provide the functionality, standardization, and customer-driven authorization protocols inherent in GBC… [T]he Company believes that GBC is the appropriate protocol for transferring customer usage information. Development of an alternative would be costly and duplicative, and not based on a nationwide standard."[13] GBC was recently adopted by Rockland Electric in New Jersey, and has been adopted by utilities in California, Colorado, Illinois, Texas, and New York. [14]

In addition, noting the larger shift in the energy industry we encourage the Board to think about how data needs might evolve. As the Board considers the larger role and cost and benefits of AMI in New Jersey, we highlight that New Jersey has the unique opportunity to leverage the valuable lessons learned in leading states and take advantage of national standards, which were not available to first movers when they began their deployments. Now is the ideal time to proactively think and about how data access policies that leverage best practices can be implemented in order to maximize the customer benefits associated with the potential investments in smart meters. The experience of AMI deployment across the country has indicated that failure to address data access issues comprehensively up front can prevent many of the anticipated AMI benefits and innovations from being realized for many years. The Open Data Access Framework ("ODAF"), developed by EDF and the Citizens Utilities Board for use in Illinois provides a good reference point, and offers guiding principles for access to customer energy usage data.[15] The

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[13] Consolidated Edison Company of New York, Customer Operations Panel, January 2016, available at: http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b18A56129-99CB-445B-9FC3-209A60FE9393%7d

[14] New Jersey Board of Public Utilities, *IN THE MATTER OF THE PETITION OF ROCKLAND ELECTRIC COMPANY FOR APPROVAL OF AN ADVANCED METERING PROGRAM; AND FOR OTHER RELIEF*, August 23, 2017, Docket No. ER16060524, available at: https://www.state.nj.us/bpu/pdf/boardorders/2017/20170823/8-23-17-2F.pdf

[15] Illinois Commerce Commission Docket 14-0507, Petition of the Citizens Utility Board and Environmental

ODAF offers utilities and regulators the underpinnings for a robust data access policy by addressing issues such as types of data, third party authorization and access, data format, methods of delivery, timeliness, billing quality data, data security.

Part of this long-range approach to future data needs should also include an evaluation of the types of data that would be required for settlement purposes in order to expand wholesale market programs such as demand response and energy efficiency to utility customers.

**8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?**

We appreciate the BPU's attention to valuing non-energy benefits and believe that the consideration of non-energy benefits is highly beneficial to a successful energy efficiency program and fully grounded in the intent of the Clean Energy Act. When creating a method for conducting a cost-benefit analysis to execute this intent, the BPU should focus less on specific named tests or specific formulas from other states and instead consider the general components of a Resource Value Framework (RVF), an approach to developing policy-aligned cost-effectiveness tests that works to establish symmetry in the counting and crediting of costs (addressing a pitfall of some tests that might undervalue harder-to-track benefits of efficiency).[16] Most importantly, any cost benefit analysis should value environmental externalities of criteria pollutants and carbon dioxide, consider peak-shaving benefits (kilowatts, not just kilowatt-hours), focus on bill impacts rather than rate impacts, and ascribe value to participation benefits.

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Defense Fund to Initiate a Proceeding to Adopt the Illinois Open Data Access Framework (August 15, 2014), available at http://www.icc.illinois.gov/docket/files.aspx?no=14-0507&docId=217753 (last visited Dec. 7, 2015).

[16] "National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources," National Efficiency Screening Project (NESP), Spring 2017.

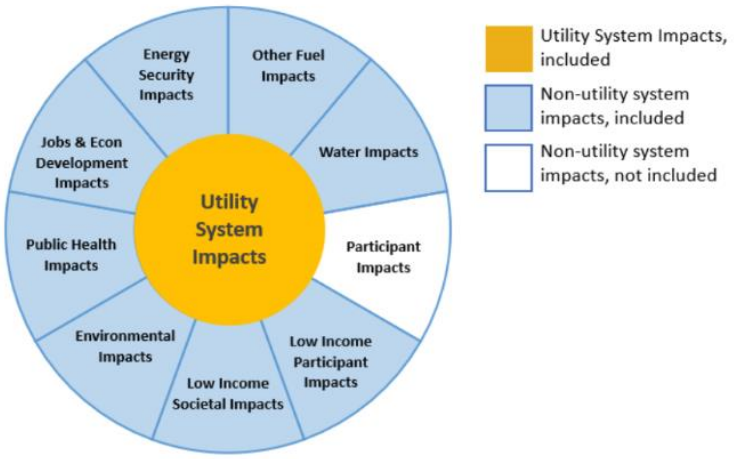
While understanding that the exact parameters of a cost-benefit analysis under the Resource Value Framework will vary from state to state, it is useful to look at the generalized process other states have used to design their specific tests. Minnesota, for instance, contracted with Synapse Energy Economics to establish the following basic steps to developing a workable test:[17]

1. Evaluate the relevant policy goals, rules, and practices;
2. Determine what utility system impacts are included in current tests, and which additional impacts expressed by the policy goals should be included;
3. Consider whether and how to include participant impacts;
4. Consider whether and how to include low-income participant impacts;
5. Consider whether and how to include other fuel impacts; and
6. Consider whether and how to include additional social impacts.

As a result of working through these questions, Minnesota implemented a test as illustrated below that effectively draws from decades of experience and accounts for the changing needs of jurisdictions that are investing in energy efficiency. The BPU should consider similar parameters – which also have the benefit of applying well with both electric and gas efficiency – in its cost benefit analysis.

[17] "Updating the Energy Efficiency Cost-Effectiveness Framework in Minnesota," Synapse Energy Economics, August 2018, http://www.synapse-energy.com/sites/default/files/Minnesota-NSPM-Report-17-094.pdf.

Figure 3. Impacts Included in the Minnesota Test




As the BPU makes this determination, we recommend including a "low-income societal benefits" component to account for the fact that there are benefits associated with serving low income customers that are greater than the benefits the same efficiency improvements might provide a household with a lesser energy burden. High energy burdens and poor housing quality contribute to health problems: poorly heated or cooled homes contribute to asthma, respiratory problems, heart disease, arthritis, and rheumatism. These healthcare costs are often at least partially born by the state directly, and moreover reduce the productivity of the workforce at large. Additionally, when LMI households cannot pay their energy bills, it increases rates for everyone; so carefully crafted energy efficiency programs can serve as an effective vehicle to put money back in the pocket of those who need it most, while lowering costs for all ratepayers. Special attention should be paid in the development of methods for cost-benefit analysis to account for these considerations. Including such a component to ensure that investment is directed to disadvantaged customers that are often more expensive to serve is also the right thing to do from a moral perspective. As noted elsewhere, we also strongly urge cost-effectiveness to be evaluated

at a portfolio-wide level rather than by each program. In other states, portfolio analysis has proved critical to successful deployment of low-income focused programs.

Finally, we urge the BPU to implement formulas that consider societal costs with an appropriately low discount rate (as is called for by a process that truly views costs and benefits symmetrically and not just from one vantage point). A discount rate indicates the percent at which costs incurred in the future are valued as less costly than costs incurred in the short term; a lower discount cost reflects valuing the future more closely to the way we value the present. Vermont is a good example of a state that considers non-energy benefits and values low-income inclusion (in the form of a 15 percent adder) and complements these practices by using a more appropriate societal discount rate of 3 percent.[18] Indeed, even the 3 percent societal discount rate is modest—a survey of economists found that the median discount rate found appropriate was just 2 percent, with many estimates as low as 0.1 percent.[19]

**9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?**

In designing its Independent Advisory Committee, we recommend that the BPU look to model bodies from other states that have proven successful. In particular, Massachusetts's Energy Efficiency Advisory Council is a successful example of how such an Independent Advisory Committee can be implemented.

Massachusetts' council is composed of representatives from organizations and interests that are named in the enabling legislation and appointed to five-year terms by the Massachusetts

[18] "Non-Energy Impacts Approaches and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond," Northeast Energy Efficiency Partnerships, June 2017 https://neep.org/sites/default/files/resources/NEI%20Final%20Report%20for%20NH%20updated%2010.4.17.pdf.
[19] "Discounting Disentangled," Moritz Drupp, Mark Freeman, Ben Groom, and Frikk Nesje, November 2015, http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/06/Working-Paper-172-Drupp-et-al.pdf.

Department of Public Utilities, with the exception of the energy efficiency small business representative, who is elected by his or her peers. While New Jersey's Clean Energy Act does not name such representatives, we suggest that the BPU could draw from the stakeholder process for such participants. The Council is chaired by the Massachusetts Department of Energy Resources (DOER) Commissioner, and DOER staff provides support to the Council.[20]

**10. How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?**

In general, accounting for savings should be kept simple and straightforward: programs run by a utility should be credited toward a utility's minimum savings mandate. The importance of such straightforward counting provides another reason why the division of resources in Clean Energy Act implementation should feature utility-administered programs and BPU oversight and compliance. We do also recommend that BPU consider examples of other states such as New York – that may admittedly have greater executive resources to draw from, in addition to separate legislative goals for non-utility savings – to explore additional avenues for expanding energy efficiency. One such direction might be to explore additional sources of support or cross-agency collaboration potential for low income efficiency improvements. Such ventures by the BPU should be additive rather than substitutive to utility programs.

**11. How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?**

As discussed in our response to the first question, we believe that performance-based incentives should be implemented in conjunction with decoupling, or the removal of a fundamental

[20] *See http://ma-eeac.org/about/.*

disincentive for energy efficiency improvements. If requirements are one-sided "incentives" that offer risks (assuming they're backed by penalties) without rewards, utilities will never be encouraged to do more than the bare minimum (and this remains true under any form of program administration). The most effective incentive structures strike the balance between potential rewards and risks—and to do so in the most cost-saving fashion that allows flexibility for utilities to serve LMI customers as well as other participants, incentive mechanisms should be based on a utility's overall portfolio, not individual programs. We suggest the following principles for design of performance-based incentives:

- Focus primarily on decisions about long-term investments (the primary determinant of most customers' costs, and of environmental impacts);
- Base incentives on verified performance rather than simply dollars spent;
- Balance needs to create a win-win opportunity for customers and shareholders; and
- Prioritize timely implementation to provide certainty.

**12. Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?**

The BPU should seek to establish a process of continual improvement for utilities' information delivery, and not view information improvements as a one-time directive. Utilities, stakeholders, and the Commission, should have an effective process to periodically examine the sufficiency and usefulness of utility information delivery methods and content. This is especially important in light of the pace of technology change and the changing nature of customer usage.

***Participating Organizations***
Alliance for a Living Ocean
American Littoral Society
Arthur Kill Coalition
Asbury Park Fishing Club
Atlantic Highlands Arts Council
Bayshore Regional Watershed Council
Bayshore Saltwater Flyrodders
Belford Seafood Co-op
Belmar Fishing Club
Beneath The Sea
Bergen Save the Watershed Action Network
Berkeley Shores Homeowners Civic Association
Cape May Environmental Commission
Central Jersey Anglers
Citizens Conservation Council of Ocean County
Clean Air Campaign, NY
Clean Water Action
Coalition Against Toxics
Coalition for Peace & Justice/Unplug Salem
Coastal Jersey Parrot Head Club
Communication Workers of America, Local 1075
Concerned Businesses of COA
Concerned Citizens of Bensonhurst
Concerned Citizens of COA
Concerned Citizens of Montauk
Eastern Monmouth Chamber of Commerce
Environment NJ
Fishermen's Conservation Association, NJ Chapter
Fishermen's Conservation Association, NY Chapter
Fishermen's Dock Cooperative, Pt. Pleasant
Food and Water Watch, NJ
Friends of Island Beach State Park
Friends of Liberty State Park, NJ
Friends of the Boardwalk, NY
Garden Club of Allenhurst
Garden Club of Bay Head and Mantoloking/Seaweeders
Garden Club of Brielle/Bayberry
Garden Club of Englewood
Garden Club of Fair Haven
Garden Club of Long Beach Island
Garden Club of RFD Middletown
Garden Club of Morristown
Garden Club of Navesink
Garden Club of New Jersey
Garden Club of New Vernon
Garden Club of Oceanport
Garden Club of Princeton
Garden Club of Ridgewood
Garden Club of Rumson
Garden Club of Sea Girt/Holly
Garden Club of Short Hills
Garden Club of Shrewsbury
Garden Club of Spring Lake
Garden Club of Terra Nova
Garden Club of Washington Valley
Great Egg Harbor Watershed Association
Green Party of Monmouth County
Green Party of New Jersey
Highlands Business Partnership
Hudson River Fishermen's Association
Jersey Shore Captains Association
Jersey Shore Parrot Head Club
Jersey Shore Partnership
Junior League of Monmouth County
Keyport Environmental Commission
Kiwanis Club of Shadow Lake Village
Leonardo Party & Pleasure Boat Association
Mantoloking Environmental Commission
Marine Trades Association of NJ
Monmouth Conservation Foundation
Monmouth County Association of Realtors
Monmouth County Audubon Society
National Coalition for Marine Conservation
Natural Resources Protective Association, NY
NJ Beach Buggy Association
NJ Environmental Lobby
NJ Friends of Clearwater
NJ Marine Education Association
Nottingham Hunting & Fishing Club, NJ
NYC Sea Gypsies
NY Marine Education Association
NY/NJ Baykeeper
Ocean Wreck Divers, NJ
PaddleOut.org
Picatinny Saltwater Sportsmen Club
Raritan Riverkeeper
Religious on Water
Rotary Club of Point Pleasant
Rotary District #7540—Interact
Saltwater Anglers of Bergen County
Sandy Hook Bay Anglers
Save Barnegat Bay
Save the Bay, NJ
SEAS Monmouth
Shark Research Institute
Shark River Cleanup Coalition
Shark River Surf Anglers
Sierra Club, NJ Shore Chapter
Sisters of Charity, Maris Stella
South Monmouth Board of Realtors
Staten Island Tuna Club
Strathmere Fishing & Environmental Club
Sunrise Rod & Gun Club
Surfers' Environmental Alliance
Surfrider Foundation, Jersey Shore Chapter
Surfrider Foundation, South Jersey Chapter
TACK I, MA
Unitarian Universalist Congregation/Monm. Cnty.
United Boatmen of NY/NJ
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October 12, 2018

Adia Camacho-Welch
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Board of Public Utilities
44 S Clinton Ave
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*Submitted Electronically to energyefficiency@bpu.nj.gov*

**RE: In the Matter of the Implementation of P.L. 2-18, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs – Docket No. QO19010040.**

## I. Introduction

Clean Ocean Action welcomes the opportunity to comment on the New Jersey Board of Public Utilities' ("BPU") development of Energy Efficiency and Peak Demand Reduction programs pursuant to P.L. 2018, C. 17. The following comments are rooted in the mission of our organization, "to improve the degraded water quality of the waters off the New Jersey/New York Coast."

The impacts of human induced climate change are disastrous and mandate bold action to drastically reduce fossil fuel consumption. As you know, jurisdictions such as New York, California, Oregon and others have already taken actions to aggressively implement Energy Efficiency and Demand Response programs. New Jersey must act now to catch up and achieve the deep carbon reductions achievable through demand-side management programs ("DSMP"), such as energy efficiency and demand response. The potential reductions which can be achieved through more efficient use of this massive amount of wasted energy is the primary reason that energy efficiency has been called by many as the *first renewable resource.* Energy efficiency and other DSMPs are the cheapest and cleanest ways to achieve a more sustainable future. Moreover, not only do these programs achieve necessary energy and emission reductions in their own right, but they allow for easier penetration of renewable energy resources and deferment of new fossil fuel generation needed to meet increasing peak demand. As the state looks to achieve its legally binding and morally

imperative goal of 100% renewable energy by 2050, the programs created now must be strong, effective and well designed.

To ensure the goals of the New Jersey Clean Energy Act are implemented, and the transition to a renewable energy future is achieved, Clean Ocean Action urges the BPU to:

(1) Abandon the traditional "cost-of-service" utility regulatory approach which hinders investments in DSMPs by (a) decoupling electric rates, and (b) establishing quantitative performance indicators which reflect strong environmental policies and financially reward utilities for meeting and exceeding specific goals; and
(2) Adopt proven demand-side management programs such as (a) a statewide residential demand response program, and (b) mandate that all Investor Owned Utilities ("IOUs") develop a default time of use rate structure for residential customers; and
(3) Allow for recovery of cost-effective investments of energy efficiency by IOUs; and
(4) Accurately account for environmental, health, and societal benefits of DSMPs by adopting guidance on valuation of environmental benefits for emission reductions. Specifically, adopting (a) the EPA's Technical Support Document for Estimating Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors, and (b) the Social Cost of Carbon.

## II. The BPU Must Abandon the Traditional Cost-of-Service Regulatory Model Which Discourages Utility Investment in DSMPs

The New Jersey BPU must dramatically change the current regulatory structure governing IOUs for energy efficiency and demand response programs to be truly effective. The BPU must shift away from the traditional regulatory model which promotes electric sale growth and therefore hinders utility incentives to promote DSMPs.

Clean Ocean Action specifically urges the BPU to: (A) decouple electric rates for IOUs, and (B) create effective quantitative performance indicators that reward utilities for reaching or exceeding environmentally oriented goals.

### A. Decoupling Revenue

First, New Jersey must join numerous other states in decoupling electric rates.[1] Decoupling revenue is a necessary action to ensure the benefits from the diverse suite of DSMPs, such as energy efficiency and demand response programs, are fully realized.[2]

The issue with the traditional "cost of service" regulation model is well documented. The throughput incentive severely hinders utility investments in energy efficiency programs and other DSMPs which result in less energy sales.[3] Utilities have an incentive, and under traditional regulation a right, to promote sales growth to recover on capital investments, which is generated when the fixed rates the government sets are recovered through volumetric sales of energy to consumers.[4] The EPA has noted that the throughput incentive is the primary barrier to aggressive utility investment in energy efficiency.[5]

Thus, without changing the underlying structure of utility regulation within the state, the development of quantitative performance incentives will be undermined by the inherent drive to continue to increase electric sales. A well designed decoupled system removes the link between the amount of energy sold and the revenue collected by the utility. In states with decoupled revenue, rates are adjusted so that utilities receive fair compensation to cover costs and provide a fair return to shareholders independent from the fluctuations in sales. Decoupling both removes the incentive for utilities to promote growth in sales and realigns profit making incentives to favor environmentally beneficial actions. Failure to transition to decoupled electric rates discourages energy efficiency, discourages distributed energy resources, distracts from service and policy goals, and creates high risk and revenue volatility.

Therefore, decoupling is a powerful and needed reform that will not only alleviate the shortcomings of traditional regulation, but will complement DSMPs such as energy efficiency and demand response, while promoting grid modernization. Studies indicate that revenue decoupling is an enabling policy for all DSMPs.[6]

The benefits of decoupling include:

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[1] Currently nineteen states and the District of Columbia have enacted electric decoupling. *See,* Center for Climate and Energy Solutions, *Decoupling Policies.* Available at https://www.c2es.org/document/decoupling-policies

[2] *See*, Jenya Kahn-Lang, 2016. "The Effects of Electric Utility Decoupling on Energy Efficiency," The Energy Journal, International Association for Energy Economics, vol. 4

[3] National Action Plan for Energy Efficiency (2009). *Energy Efficiency as a Low-Cost Resource for Achieving Carbon Emissions Reductions*. Prepared by William Prindle, ICF International

[4] *Id.*

[5] *Id.*

[6] Cross-Call, Dan, Rachel Gold, Cara Goldenberg, Leia Guccione, and Michael O'Boyle, *Navigating Utility Business Model Reform: A Practical Guide to Regulatory Design*, Rocky Mountain Institute, 2018. Available at www.rmi.org/insight/navigating-utility-business-model-reform

(a) Removing the incentive for increased electric sale and generation capacity by IOUs; and
(b) A reduction in the need for general rate cases, which reduces the costs of the ratemaking process; and
(c) A decrease in the financial risk for the utility because the policy reduces the volatility of traditional pricing; and
(d) Decoupling can motivate customers to improve building efficiency by creating a lower price for fixed rate components on utility bills with associated higher volumetric charges.[7]

Furthermore, decoupling has not been shown to adversely affect individual electric rates. The impacts from decoupling adjustments result in less than a $2.00 difference in a customer's average electric bill.[8]

Therefore, Clean Ocean Action strongly urges the BPU to decouple the electric rates for IOUs.

B. Establishment of Quantitative Performance Indicators

Second, Clean Ocean Action urges the BPU to design Quantitative Performance Indicators ("QPI") to account for environmental oriented utility actions. Moving toward a decoupled regulatory approach removes barriers from investment into energy efficiency and demand response. However, decoupling alone does not provide an incentive for investments or for a specific performance level.[9] Even with a decoupling mechanism in place, investor-owned utilities often still have an incentive to make supply-side investments to provide greater returns to shareholders.[10]

Therefore, the BPU should establish reasonable earning opportunities through the QPIs. The main purpose of developing these QPIs should be to create a financial incentive for utilities to meet specific performance outcomes and targets that are consistent with public policy objectives, as well as placing DSMPs on an equal playing field with supply-side resources.

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[7] See, *Id.*

[8] National Renewable Energy Laboratory, *Decoupling Policies: Options to Encourage Energy Efficiency Policies for Utilities.* Available at https://www.nrel.gov/docs/fy10osti/46606.pdf

[9] See, Kari Lyderson, *Q&A: Going beyond decoupling to drive utility investments in energy efficiency*, Energy News U.S. (September 2017).Available at https://energynews.us/2017/09/18/midwest/qa-going-beyond-decoupling-to-drive-utility-investments-in-energy-efficiency/

[10] American Council for an Energy-Efficient Economy, *Aligning Utility Business Models with Energy Efficiency*. Available at https://aceee.org/sector/state-policy/toolkit/aligning-utility

Performance incentives have been applied in electric utility regulation for over 25 years.[11] The most common incentive mechanism has been for energy efficiency. At least 26 states have used performance incentives to encourage energy efficiency investments.[12] The BPU should adopt a strong energy efficiency incentive that complements the established Clean Energy Programs.

For example, Rhode Island established an incentive mechanism for Narragansett Electric. The incentive mechanism consists of (1) five performance-based metrics for specific program achievements, and (2) a kWh savings target by sector.[13] Different incentive amounts were awarded for meeting specific thresholds, such as the full target goal and exceeding the target goal.[14]

A similar program should be adopted in New Jersey. The policy objectives that are utilized to create the performance objective should include the traditional utility obligations of safety, reliability, and affordability. However there should be a strong emphasis on promoting environmentally oriented objectives. These include (1) reductions in greenhouse gas and other harmful emissions, (2) overall energy reductions, (3) peak energy reductions, (4) expanded consumer choice, and (5) grid resiliency.

In developing these metrics the BPU must ensure that (1) the policy goals are accurately established, (2) the incentives are tied to the established policy goals, (3) the metrics are both clearly defined and readily quantifiable, and (4) financial incentives are directly reflective of the policy goals.

## III. Demand-Side Management Programs

DSMPs, such as demand response, time-of-use rates, and energy efficiency, can be extremely effective if implemented correctly. DSMPs create reductions in peak demand and thus alleviate the need for new generation facilities such as harmful peaking natural gas power plants. The prices that utilities pay during peak demand hours drive up overall electricity

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[11] Mark Lowry, Tim Woolf, Lisa Schwartz, *Performance-Based Regulation in a High Distributed Energy Resource Future*, Future Electric Utility Regulation, Report No. 3.
[12] *Id.*
[13] Rhode Island PUC Docket No. 3635, Re*: The Narragansett Electric Company, Demand-Side Management Programs for 2005.*
[14] *Id.*

prices and therefore harm consumers. Moreover, in the PJM interconnect, 10% of infrastructure investments are used just to meet 1% of the hours of the year.[15]

A. Residential Demand Response

The BPU should direct all IOUs to develop a default residential demand response program for all customers with smart meter technology.

A report by the American Council for an Energy Efficient Economy found that demand response programs can reduce peak demand by roughly 10% on average.[16] Baltimore Gas and Electric's (BGE) Smart Energy Rewards program has been effective in shrinking peak demand while saving customers money and rewarding the utilities for reaching targeted goals. This represents an ideal model for New Jersey to adopt.

BGE is Maryland's largest utility and it began the program in 2012.[17] The program is the largest demand response program in the nation, accounting for 20% of all residential dynamic pricing customers in the United States as of 2017.[18] The program automatically enrolls all customers with smart meters. These customers are subject to the program unless they chose to opt out.[19] Enrolled customers are compensated with rebates on their monthly electric bills for reduction in energy usage during specific peak demand events called "Energy Savings Days". While the days could be anytime throughout the year, the primary focus is on combatting summer peak demand.[20] BGE determines the Energy Savings Days based on market conditions where electric demand is expected to rise significantly or when system reliability may be compromised from excess demand and scare supply.[21] Once BGE determines an Energy Savings Day, the utility notifies enrolled customers by phone, email or text. The customers who reduce their usage from 1 p.m. to 7 p.m. during the Energy Saving Day receive a $1.25/kWh bill credit.[22] The program does not penalize customers for failure to reduce usage during the day, as a TOU rate would, but instead entices customer action through potential savings.

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[15] PJM, *Demand Response and Why It's Important.* Available at https://www.pjm.com/~/media/markets-ops/dsr/end-use-customer-fact-sheet.ashx

[16] *Id.*

[17] Rocky Mountain Institute, *Maryland's Behavioral Demand Response Program – Baltimore Gas and Electric's SmartEnergy Rewards Program*. Available at https://info.aee.net/hubfs/MD%20DR%20Final.pdf

[18] Dynamic Pricing 2017 Data Early Release: https://www.eia.gov/electricity/data/eia861/ 5 Energy reductions are measured against a baseline (i.e., the customer's average usage

[19] Supra note 16

[20] *Id.*

[21] *Id.*

[22] *Id.*

Since starting in 2013, the number of eligible and participating customers has consistently grown.[23] The program has resulted in over 300 MW of peak demand reduction each year.[24] The large consumer participation levels are attributed to (1) the default nature of the program with an opt-out provision, (2) consumer understanding, and (3) increased adoption of smart meters.

BGE also benefits significantly from the program through the ability to sell peak energy demand reductions on the PJM wholesale market, thereby creating dollar benefits for customers through the avoided cost, transmission reliability, and wholesale energy price suppression.[25] BGE is able to sell these energy and peak demand reductions directly into the PJM wholesale market.[26] These savings generate dollar benefits for customers through avoided costs, avoided capital savings and wholesale energy price suppression. BGE has estimated $93 million of avoided transmission capital expenditures and $72 million of avoided distribution capital expenditures as a result of SmartEnergy Rewards from 2013 to 2015.[27]

However, it is important to note that synergistic policies were enacted which made the SmartEnergy Rewards program successful. These include (1) the adoption of an energy efficiency resource standard, (2) full revenue decoupling, (3) capitalization of operating expenses, (4) wholesale revenue and shared earnings, and (5) Smart meter cost recovery.[28]

As a result of the clear benefits from a residential demand response program Clean Ocean Action urges the BPU to, first, direct all IOUs to create a similar residential demand response program targeting customers with smart meters, and, second, to consider allowing smart meter cost recovery to increase eligible customers' participation.

B. Time of Use Rates.

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[23] *Id.*
[24] *Id.*
[25] PJM, Load Management Performance Report. (January 2019). Available at https://www.pjm.com/-/media/markets-ops/dsr/2018-2019-dsr-activity-report.ashx?la=en
[26] *Id.*
[27] Supra, note 17.
[28] Beginning in 2008 Maryland has set energy efficiency goals through the empower program. Utilities must achieve annual incremental cost-effective energy savings of 2% of retail electric sales. In 2007 Maryland transitioned to fill revenue decoupling. A key enabling policy, in Maryland utility operating expenses for energy efficiency and demand response programs are treated as capital expenditures which are therefore fully recoverable through rate basing over a five year period. Maryland allows utilities to sell aggregated demand response commitments into the PJM capacity, energy, and ancillary services markets. The earnings from these sales are passed to customers with the utilities keeping a small portion of the revenue.

New Jersey should require all Investor Owned Utilities to develop Time-of-Use Rates ("TOU") for both industrial and residential customers. Clean Ocean Action urges the BPU to require each IOU to develop a time of use rate structure as a default rate mechanism where consumers can opt-out.

An effective TOU rate sets electricity prices high when peak demand drives system costs up and sets prices low during low demand hours when low-cost renewables tend to be abundant. Properly designed and deployed TOU rates can: (1) help customers save money by shifting their use away from high-priced time periods, (2) help utilities reduce operating expenses by lowering the highest demand they must meet, and (3) can move customer use toward periods when low cost renewables are in greater supply on utility systems, which again, saves costs for customers and utilities.[29]

Despite benefits of a TOU program, most utilities have not aggressively pursued TOU rates.[30] Currently, only 14% of US utilities offer residential TOU rates.[31] Moreover, where TOU rates are available, only 3% of customers are enrolled on average.[32] However, some states have aggressively implemented TOU programs.[33] The main reasoning behind inaction on TOU rates is a belief by regulators that customers cannot understand the rate structure and do not have the technology to manage them.[34] However, in a in a survey of customer responses to over 300 time-of-use rates in 62 pilot programs, The Brattle Group, an independent energy consultant, found that succulently prepared customers not only understand, but respond to TOU rates.[35] Brattle found that on average, residential customers reduce their on-peak usage by 6.5% for every 10% increase in the peak-to-peak price ratio.[36] Moreover, technologies like smart thermostats, which increase customer control, produce increased reductions. On average, customers with enabling technologies "reduce peak usage by 11.1% for every 10% increase in the price ratio."[37]

Two states can serve as a model for effective TOU rates: California and New York.

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[29] Ryan Hledik, Ahmad Faruqui, Cody Warner, *The National Landscape of Residential TOU Rates,* the Brattle Group. (November 2017). Available at http://files.brattle.com/files/12658_the_national_landscape_of_residential_tou_rates_a_preliminary_summary.pdf

[30] *Id.*

[31] *Id.*

[32] *Id.*

[33] *Id.*

[34] *Id.*

[35] *Id.*

[36] *Id.*

[37] *Id.*

California is currently establishing a program that will put over 20 million customers on TOU rates.[38] Following an order by the California Public Utility Commission (CPUC), the three state IOUs must transition to default rates by 2019 which require customers to pay TOU rates unless they opt out.[39] San Diego Gas & Electric (SDG&E) will begin moving its customers in March, and Southern California Edison (SCE) and Pacific Gas & Electric (PG&E) were given until October 2020 in order to prepare their billing systems. New Jersey should require TOU to be default program.[40]

Under New York's REV program, the New York Public Service Commission (NYPSC) is drastically expanding TOUs. The NYSPSC sees expanding opt-in TOU rates as a necessary step toward a more comprehensive rate design reform. In 2013, the average TOU rate enrollment in NY ranged between 0.1% and 1.9%. This was well below the national average which sat at approximately 25% in 2013.[41] The NYSPSC concluded that the factors important in redesigning TOU rates will be (1) the duration of the peak period, (2) the ratio between on and off peak prices, (3) critical peak pricing, and (4) the availability of tools to customers that enable them to respond to TOU price variations. With these in mind, the NYPSC directed each utility to develop promotion and customer education tools. Proposals to increase customer acceptance may include shadow billing to allow customers to compare their existing bills against a TOU option, and temporary bill protections providing assurance that customers will not experience higher bills for comparable total usage.

In New Jersey, both PSEG and Jersey City Power and Electric offer voluntary TOU rates. The BPU should follow California and New York's lead by (1) directing all IOUs to create and submit a time of use rate with a peak and off peak rate structure, (2) each utility should create promotional and consumer education tools explaining the program before implementation and should include a period of shadow billing to show potential customer savings, and (3) the program should be a default for all residential customers who specifically opt out of the program.

## IV. Adopt Regulations Treating Energy Efficiency As A Generation Side Resource.

Clean Ocean Action urges the BPU to adopt regulations that treat energy efficiency as a generation side resource.

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[38] Herman K. Trabish, *As California leads way with TOU rates, some call for simpler solutions*, Utility Dive (September 2018). Available at https://www.utilitydive.com/news/as-california-leads-way-with-tou-rates-some-call-for-simpler-solutions/532436/

[39] *Id.*

[40] *Id.*

[41] Scheer, *Response to Time Based Rates*, Lawrence Berkeley National Laboratory, LBNL-183029, June 2015 132

A robust, swift, and aggressive implementation of energy efficiency and conservation programs which will not only reduce use of fossil fuels but save consumers significant dollars while generating thousands of good paying long term jobs, is necessary for a transition to a fossil-free future economy. To effectively combat climate change, global energy usage *must be used at least 3% more productively annually* in order keep the planet from warming more than 2 degrees Celsius over pre-industrial levels.[42] While the 3% requirement is necessary the state can, and must, do better. Energy efficiency programs have proven to be the most cost effective means of both lowering rates and reducing carbon emissions.[43]

Clean Ocean Action appreciates the steps that have been taken to correct what has been years of stagnation in terms of energy efficiency within New Jersey, mainly the adoption of an Energy Efficiency Resource Standard. While this progress is promising, more must be done. For instance, while electric savings moved upwards in 2017 within the state, they remained below the national average.[44] Furthermore, despite an increase in the overall score according to the 2018 Efficiency State Scorecard prepared by the American Council for an Energy Efficiency Economy, New Jersey saw decreases in the areas of building energy efficiency policies and state government initiatives.[45]

In addition to including QPI for energy efficiency Clean Ocean Action urges the BPU to adopt regulations treating energy efficiency as a generation side energy resource. Energy efficiency, just like traditional generation resources can be utilized to meet projected demand growth and meet load requirements; therefore it must be included in any utility planning for forecasted demand. While New Jersey does have its Comprehensive Resource Assessment (CRA) process, which accounts for system needs and costs, it does not go far enough in solidifying energy efficiency as an energy resource. The CRA process is only used to determine the funding and content of energy efficiency programs under the NJ Clean Energy Program. It does not factor in resource planning for utilities.

In their Energy Efficiency – Best Program Practices, the EPA considered making energy efficiency a resource as one of the most crucial aspects of an effective program.[46] The adoption of regulations treating energy efficient as a resource is vital to ensuring utility forecasting is

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[42] Lovins, *How Big is the Energy Efficient Resource,* Rocky Mountain Institute. Environ. Res. Lett. (Sept. 18, 2018).
[43] *See,* The Cost of Saving Electricity Through Energy Efficiency Programs Funded by Utility Customers: 2009 – 2015. Energy Analysis and Environmental Impact Division of Lawrence Berkeley National Laboratory. (June 2018). Available at http://eta-publications.lbl.gov/sites/default/files/cose_final_report_20180619_1.pdf
[44] American Council for an Energy-Efficient Economy, *State Energy Efficiency Scorecard 2017*. Available at http://aceee.org/state-policy/scorecard
[45] *Id.*
[46] U.S. Environmental Protection Agency, Energy Efficiency Best Practices. Available at https://www.epa.gov/sites/production/files/2015-08/documents/napee_chap6.pdf

driven with the best interests of consumers, as well as alignment with the renewable energy goals set by the state. Oregon and Illinois represent two examples of the methods and success of treating energy efficiency as a generation side resource.

Oregon has specifically designated energy efficiency as a resource in its planning process. Therefore, when utilities are filing plans with the Oregon Public Utility Commission for demand needs, energy efficiency is viewed as a resource along with all other generation side development, such as power plant construction. Under Oregon Public Utility Commission Order 89-507, utilities are requires to undertake a cost-effective planning technique, which requires the utility to consider both supply and demand-side aspects in meeting forecasted demand.[47] Even more promising is under PUC Order 89-507, Oregon requires utilities to conduct a conservation potential study for its utility service territory, to identify potential savings through conservation methods in order to offset needed generation development.[48] Finally, the Oregon process also places a significant emphasis on risk assessment. Unlike any other state, Oregon requires that "risk and uncertainty must be considered" in resource planning.[49] Risk is defined as a measure of possible negative outcomes associated with the resource plan.[50] Uncertainty is defined as the measure of the quality of information about a specific event or outcome which the plan assumes in assessing options to meet service loads.[51] The Oregon PUC requires that utilities take the identified risks, their probabilities of occurrence, and the likelihood of negative outcomes into their choice of preferred resource plan, while still mandating utilities to pursue the most cost-effective option available.[52]

An analysis of Portland General Electric's (PGE) IRP for the past years illustrates the success Oregon has had in considering energy efficiency as a resource. PGE is Oregon's largest utility. In Order No. 14-415, the Oregon PUC directed PGE to acquire 114MWa of cost-effective energy efficiency by 2017. Since this order, PGE has released its 2016 Integrated Resource Plan. In the plan, PGE had to consider energy efficiency as a resource among other generation side resources. As a result, energy efficiency was found to be the most beneficial and was outlined being the first means of meeting all projected load growth.[53] The plan notes that thus far PGE has recognized that energy efficiency has reduced its load growth by 1.5% per year.[54] The plan also highlights that efficient capacity holds the highest portfolio score as a result of both its low

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[47] Public Utility Commission of Oregon. Order No. 89-507. Docket No. UM 180. April 20, 1989
[48] Public Utility Commission of Oregon. Order No. 07-002. Docket No. UM 1056. January 8, 2007.
[49] Public Utility Commission of Oregon. Order No. 07-002. Docket No. UM 1056. January 8, 2007.
[50] *Id.*
[51] *Id.*
[52] *Id.*
[53] *Id.*
[54] Portland General Electric, Integrated Resource Plan. (Nov. 2016) p. 27

reference cost and cumulative CO2 savings.[55] From 2017 through 2020 PGE's plan calls for implementing an additional 135 MWh of energy efficiency on top of what the PUC has already ordered, with continued growth in later years.[56] Oregon's IRP led PGE to conclude that in all 23 portfolios assessed, energy efficiency is the preferred and lowest cost resource available.[57]

In 2016, Utah passed SB 115, the Sustainable Transportation and Energy Plan Act.[58] The bill allows for Rocky Mountain Power to "capitalize the annual costs incurred for demand-side management" and to "amortize the annual cost for demand-side management over a period of 10 years."[59] Therefore, the utility can now earn a returned investment on all energy efficiency programs, thereby making the programs equal to generation sided solutions.[60] Furthermore, by establishing a 10 year recovery period the law both increases the cost effectiveness of energy efficiency and combats the disconnection between the upfront costs and the long term savings.[61]

Therefore, it is critical that the BPU adopt regulations establishing energy efficiency and other demand-side management programs as an energy resource. The BPU must quickly evaluate the means of establishing this change, and engage in rulemaking if required.

## V. Cost Benefit Analysis

According to the New Jersey Clean Energy Act, energy efficiency and peak demand reduction programs shall have a benefit-to-cost ratio great than or equal to 1.0 at the portfolio level, considering both economic and environmental factors.[62] In the calculation for the cost-benefit analysis related to DSMPs Clean Ocean Action strongly urges the BPU to incorporate (1) the avoided utility environmental compliance cost, (2) the societal environmental benefits, (3) societal health benefits, and (4) participant health benefits.

### A. Incorporate Health and Environmental Benefits.

When calculating the dollar amount for specific targeted emission as it relates to the above four categories, the BPU should adopt (1) the U.S. Environmental Protection Agency's Technical Support Documents for calculating the environmental benefit of emission reductions related to

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[55] *Id.*
[56] *Id.* at 28
[57] *Id.* 32
[58] Utah Code § 54-7-12.8
[59] *Id.*
[60] See, Doug Lewin, and Peter Kind, *Create Customer and Investor Value Through Energy Efficiency,* CLEAResult.
[61] *Id.*
[62] P.L. 2018, c. 17. 48:3-87.9.

SO2, NOx, PM2.5, VOC, and NH3, and (2) the social cost of carbon for greenhouse gas emission reductions.

Currently, 19 states have incorporated health and environmental benefits into the cost-effectiveness testing for energy efficiency programs.[63] Of those 19 states the specific break down of impact account for is:

- 13 account for avoided environmental compliance costs; and
- 13 account for societal environmental benefits; and
- 9 account for participant health benefits; and
- 3 account for societal health benefits.[64]

Every state that includes environmental benefits—either utility or societal—uses avoided emissions as the primary environmental factor, with most states monetizing these benefits.[65] By incorporating health and environmental benefits, these states more accurately reflect the true benefits of emission reductions achieved with DSMPs which make them more competitive against traditional generation side solutions.

Currently New Jersey is not one of the 19 states. New Jersey must begin to accurately and seriously evaluate the environmental and health impacts associated with emission reductions for DSMPs. Without a strong and realistic valuation of the environmental benefits from prospective energy efficiency and peak demand reduction programs, a benefit-to-cost ratio of over 1.0 is unlikely to be met, and therefore effective programs will be denied. The environmental impacts to human health and to climate change should not be underestimated.

A. <u>Incorporate U.S. EPA's Technical Support Document for Calculating the Benefit's of SO2, NOx, and PM2.5 Reductions</u>

Clean Ocean Action urges the BPU to adopt the EPA's Technical Support Document for Estimating Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors ( "Technical Support Document") for evaluation of the environmental benefit from emission reductions related to SO2, NOx, and PM2.5.

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[63] American Council for an Energy Efficiency Economy, *Cost-Effectiveness Tests: Overview of State Approaches to Account for Health and Environmental Benefits of Energy Efficiency*. (Dec. 2018). Available at https://aceee.org/sites/default/files/he-ce-tests-121318.pdf

[64] *Id.*

[65] *Id.*

The Technical Support Document is the primary data source relating to damages from SO2, NOx, and PM2.5. The Technical Support Document contains analysis and values that have been used in several Regulatory Impact Assessments, including the assessments for the Cross-State Air Pollution and Mercury and Air Toxins Rule.

The calculations were established using source apportionment photochemical modeling to predict annual average ambient concentrations of emissions to each of 17 emission sectors across the Continental U.S.[66] Moreover the analysis focused on assessing the Health Impact Assessment (HIA) which quantifies the changes in the incidence of adverse health impacts resulting from changes in human exposure.[67]

Clean Ocean Action strongly urges the adoption of the Technical Support Document for all demand-side management cost-benefit analysis related to SO2, NOx, and PM2.5.

B. Adopt the Social Cost of Carbon for Calculating the Benefits from CO2 Reductions

Clean Ocean Action urges the BPU to adopt the Social Cost of Carbon as established by the Interagency Working Group for calculating the avoided damages associated with displacing CO2 emissions.

First, the valuation is contained in the Energy Efficiency Cost-Benefit Analysis Avoided Cost Assumptions from the Rutgers Center for Energy, Economic, and Environmental Policy ("CEEEP") provided to the BPU to value emission reductions from energy efficiency. Moreover, this source is also supported by New Jersey law, N.J.S.A. 48:3-87.3, signed by Governor Murphy in May 2018, which states that "The social cost of carbon, as calculated by the US Interagency Working Group on the Social Cost of Carbon in its August 2016 Technical Update, is an accepted measure of the cost of carbon emissions."

However, Clean Ocean Action urges the BPU to consider the Social Cost of Carbon for more than energy efficiency. The cost should be used for all demand-side management programs which reduce CO2 emissions.

Moreover, while the Trump Administration recently introduced interim values for the Social Cost of Carbon pursuant to Executive Order 13783, this number does not accurately reflect the avoided damages from displaced CO2 emissions and therefore should not be utilized.

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[66] U.S. Environmental Protection - Agency Office of Air and Radiation, *Technical Support Document Estimating the Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors,* (February 2018). Available at https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf

[67] *Id.*

## VI. Conclusion

The passage of the New Jersey Clean Energy Act as well as the development of the new Energy Master Plan, provide an opportunity for the State of New Jersey to continue to develop on improvements in DSMPs. Strong DSMPs will be essential in meeting the legally binding and morally necessary statewide goal of 50% renewable energy by 2030, and 100% renewable by 2050.

Again, the first priority in transitioning to a fossil-free-future is robust, swift, and aggressive implementation of energy efficiency and conservation programs. Energy efficiency is the greenest and most cost-effective energy resource. These comments have outlined action steps necessary for achieving a clean energy future and meeting the renewable energy objectives the state has adopted. The BPU must take swift action to aggressively incorporate DSMPs within the state to ensure a clean energy future.

Clean Ocean Action looks forward to continuing to work with the BPU to ensure that DSMPs are given the prioritization they deserve and regulatory reforms are established to create deep carbon emission reductions. We look forward to seeing New Jersey become a national leader in energy efficiency and demand response programs.

Sincerely,

Cindy Zipf

Executive Director

Peter Blair, Esq

Policy Attorney

Bloomenergy™

February 15, 2019

Aida Camacho-Welch, Secretary of the Board
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton, New Jersey 08625-0350

Re: In The Matter Of The Implementation Of P.L. 2018, C. 17
Regarding The Establishment Of Energy Efficiency And Peak Demand
Reduction Programs - Docket No. QO19010040

Dear Secretary Camacho-Welch:

Please accept the following comments of Bloom Energy Corporation ("Bloom Energy") in response to the Notice issued on January 22, 2019 in the above-captioned proceeding.

Bloom Energy is a manufacturer of solid oxide fuel cell systems that produce on-site power for many of the world's most demanding customers. The Bloom "Energy Server" fuel cell generates electricity through a highly efficient electrochemical process without combustion and therefore does not produce the local forms of "criteria" air pollutants associated with combustion technologies or consume or discharge water. Bloom Energy Servers are designed in a modular fault-tolerant format that provides mission critical reliability with no downtime for maintenance. Bloom Energy has installed over 350MW of its solid oxide fuel cell systems for customers in eleven U.S. states as well as in Japan, South Korea, and India.

Bloom Energy appreciates the opportunity to respond to the Notice. The remainder of our comments will be focused upon answering the questions posed in the Notice.

1. *What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that*

*New Jersey can implement to reach its energy efficiency and peak demand reduction goals?*

*Energy Efficiency*: In response to the demonstrated success of utility administered energy efficiency programs delivering value to ratepayers, the urgency of climate change, and the rapid development of technology, leading states are broadening the portfolio of eligible energy efficiency measures and taking into account additional "non-energy" benefits. For instance, Massachusetts, the nation's leading energy efficiency program according to the American Council for an Energy Efficient Economy("ACEEE")[1], recently shifted its reporting of all energy savings to a single unit—BTUs—in order to take a more wholistic view of the program's impacts on the energy system and committed to undertake "*all cost effective energy efficiency"*[2] measures. Specifically included in this expansive list of eligible technologies are fuel cells without heat recovery. Similarly, the PSEG-Long Island energy efficiency program also recently revised its eligible efficiency measures, to include fuel cells without heat recovery.

These inclusive approaches have opened a wide new range of efficiency opportunities, especially for that vast majority of customers who do not have matching thermal and electric loads necessary to support an efficient combined heat and power ("CHP") project. In contrast, the existing NJ BPU administered program instead lists specific energy efficiency measures that are included and explicitly excludes fuel cells without heat recovery, *even if they meet the cost effectiveness test*, unecesarily limiting the range of options available to customers and program administrators.[3]

[1] https://aceee.org/state-policy/scorecard

[2] http://ma-eeac.org/wordpress/wp-content/uploads/October-Final-Resolution.pdf p2

[3] For instance, the existing BPU program excludes fuel cells without heat recovery projects that have been shown to achieve a less than 6 year "payback period" while at the same time awarding energy efficiency funds to combustion CHP projects that have been shown to achieve payback periods in excess of 13 years.

Fuel cell without heat recovery projects are efficiency measures because they reduce primary energy consumption by displacing less efficient marginal generation from the grid while also avoiding system inefficiencies such as line losses. Marginal power plants, i.e. the generation facilities that are called by PJM to generate less power as a result of reductions in electricity load, have heat rates that average between 9,000 to 10,000 BTU/kWh based on Monitoring Analytics' Quarterly State of the Market Report for PJM[4] and data reported in the EPA eGRID database before accounting for line losses. Bloom Energy's Energy Server Platform delivers power at heat rates ranging from 5,815 BTU/kWh to 6,745 BTU/kWh, delivering significant reductions in the amount of BTUs required to provide the same amount of power to the facility (i.e. increased efficiency) along with significant co-benefits. In terms of emissions, this results in a 45% or greater reduction in GHG emissions[5]. The leading state and utility programs have recognized this and have recently moved to open their energy efficiency progams to fuel cell without heat recovery projects. New Jersey should likewise adopt technology neutral eligibility criteria that are based upon standardized cost effectiveness tests that apply equally to all proposed projects and take into account demonstrated co-benefits.

*Peak Demand Reduction:* Other states in the region are also using fuel cells without heat recovery in the leading peak demand reduction programs and strategies. In 2014, Con Edison of New York estimated that its network would be overloaded by 52MW by 2018, requiring an investment of nearly $1.2B in a proposed transmission line and substation. Both the utility and the New York PSC agreed that there was a less expensive way to serve Con Ed's customers. Instead of asking ratepayers to cover the $1.2 billion cost for traditional utility infrastructure, Con Ed launched the Brooklyn Queens Demand Management Program (BQDM), which provided targeted incentives for 52 megawatts

[4] https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2018/2018q1-som-pjm-sec7.pdf

[5] Based on 2017 marginal emissions reported in the 2013-2017 CO2, SO2 and NOX Emission Rates published by PJM and assuming 4.49% line losses for the Eastern Interconnection from 2016 EPA eGRID

of peak load reduction resources and successfully avoided the system capacity upgrades at a cost of just $200 million.

Con Ed achieved its peak demand reduction objective by partnering with the advanced energy industry to identify a suite of technologies that could meet the utility's load reduction needs. In the first solicitation of its kind, suppliers brought a range of technologies, solutions, and projects to Con Ed. After an exhaustive review that included solar, wind, CHP, Demand Response, and efficiency measures, Con Ed selected Bloom Energy solid oxide fuel cells as a significant component of its portfolio solution due to their small footprint, high capacity factor, lack of local air pollution, and innocuous siting characteristics. Bloom Energy thereafter installed fuel cell without heat recovery projects at six separate customer locations identified by Con Edison, including a low income housing development, two retail stores, a state government facility, and two large hospitals, delivering an aggregate of 6.1 MW of peak load reductions.

This type of targeted load relief combines peak demand reduction with avoided transmission and distribution investments is only achievable with technologies that can be relied upon to provide long duration load relief and are capable of being targeted by utility distribution engineers. Importantly, the BQDM program demonstrated that where transmission and distribution investments can be reliably avoided, peak demand objectives can be achieved *at a savings rather than at a cost*. The New Jersey BPU should look to the Con Ed BQDM program as a peak demand "best practice," and allow fuel cells without heat recovery to participate in peak demand reduction programs.

8. *What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?*

The Board should utilize a cost-benefit analysis framework that aligns with the State's policy goals. The California Standard Practice Manual defines five tests to evaluate the cost-effectiveness of energy efficiency programs. Historically, states have chosen one of

these five cost-effectiveness tests or combined elements of multiple tests to create their own. However, in doing so, many states either inadvertently choose a test that doesn't fully align with the states' policy goals or do not properly apply the cost-effectiveness tests and thus underestimate the value of energy efficiency resources, leading to higher costs to utility customers and society.

The National Standard Practice Manual (NSPM) was developed in 2017 to address these shortcomings[6]. The NSPM describes the principles, concepts, and methodologies for sound, balanced assessment of resource cost-effectiveness. The NSPM is applicable to all types of electric and gas utilities and jurisdictions where energy efficiency resources are funded by – and implemented on behalf of – electric or gas utility customers. When evaluating energy efficiency and other clean energy resources, it is imperative to apply the NSPM framework to evaluate cost-effectiveness to ensure that all relevant costs and benefits are evaluated appropriately according to state policy objectives.

In the spirit of aligning cost effectiveness testing with New Jersey's stated policy goals, while acknowledging the limited time in which the Board must implement any changes in the cost effectiveness test, Bloom Energy recommends that the Board adopt a Societal Cost Test as a near-term solution. In particular, Bloom encourages the Board to include consideration for the following co-benefits;

*Avoided Criteria Air Pollution* – The NJ BPU Clean Energy program does not currently take into account emissions of local air pollution such as NOx, SO2, and Particulate Matter. At the same time, most areas of New Jersey are non-attainment areas for Ozone, and multiple sections of New Jersey law highlight the importance of considering these environmental benefits (see N.J.S.A. 48:3-87(l) and N.J.S.A. 48:3-87.1(a)(10)). This is particularly troublesome at a time when the desire to increase resiliency and avoid

[6] https://nationalefficiencyscreening.org/national-standard-practice-manual/

transmission and distribution investments is driving more and more distributed generation into densely populated urban "load pocket" areas. The Board's current approach incents higher-emitting combustion CHP while excluding non-combustion fuel cells without heat recovery from participation. The real life impacts of local air pollution on human health and the environment have been shown to be substantial[7] [8] [9] and are largely uninternalized. The Board should take into account the value of health benefits from avoided criteria air pollutants.

*Locational Benefits* – As described above in relation to the Con Edison BQDM program, there are significant ratepayer savings that can be achieved by including locational benefits in cost benefit-analyses. The current BPU Clean Energy Program approach should be revised to include locational or system benefits as part of the cost-benefit test.

*Customer Resiliency* – Many of the most important assets during a public emergency are operated by private – not public – entities. For example, the telecommunications system that serves not only the public but also first responders and emergency management officials, is operated by private telecommunications companies. Likewise, private facilities like supermarkets and large retail stores such as Walmart and The Home Depot can serve as critical community assets before, during, and after extreme weather events. During the next public emergency in New Jersey, millions of citizens and the government itself will attempt to rely upon a privately-owned telecommunications network to communicate, a privately-owned information technology sector to access data, and a privately- owned commercial sector to obtain food, clothes, and water. Customer

[7] Perera F (2018) Pollution from fossil-fuel combustion is the leading environmental threat to global pediatric health and equity: solutions exist. https://www.ncbi.nlm.nih.gov/pubmed/29295510

[8] Shrader J, Unel, B. Zevin (2018) Vallution Pollution Reductions: How to Monetize Greenhouse Gas and Local Air Pollutant Reductions from Distributed Energy Resources. https://policyintegrity.org/documents/valuing_pollution_reductions.pdf

[9] Air Pollution and the Health of New Yorkers: The Impact of Fine Particles and Ozone. https://www1.nyc.gov/assets/doh/downloads/pdf/eode/eode-air-quality-impact.pdf

resiliency, and particularly the ability of a project to provide un-interrupted electricity to a critical customer should be taken into account in the cost-benefit review process.

*Electric Vehicle Charging* - Solid oxide fuel cells produce DC power as a native output and are capable of deployment in either AC, DC, or combined AC and DC project modes. The ability to generate reliable (i.e. non-intermittment) non-combustion DC power at distributed locations creates unique benefits as compared to grid-supplied EV charging, including; avoided EV related transmission and distribution investments, avoided "time of charge" (i.e. peak demand) concerns associated with EVs, and avoided inefficiencies associated with AC/DC and DC/AC inversions. In light of the impending growth of electric vehicles these important considerations should be taken into account in the Board's cost benefit analyses.

Bloom Energy appreciates the opportunity to provide these comments in response to the January 22nd Notice. We look forward to working with the Board and Staff as the energy efficiency programs are developed and stand ready to provide additional information wherever that information will be helpful to the process.

Very truly yours,

/S/

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**RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

Dear Secretary Camacho-Welch:

The Energy Efficiency Alliance of New Jersey ("EEA") is pleased to submit these comments on behalf of its member companies to the Board of Public Utilities ("BPU") in the above reference proceeding.

Sincerely,

Eric D. Miller, Esq.
Policy Counsel
I.D. No. 161452016
Energy Efficiency Alliance of New Jersey

## I. INTRODUCTION

The Energy Efficiency Alliance of New Jersey ("EEA") is a trade association dedicated to expanding the market for energy efficiency in the Garden State. Between EEA and its sister organization, the Keystone Energy Efficiency Alliance ("KEEA"), EEA has more than 60 business members who provide energy efficiency products and services across the state, and support an industry that employs more than 30,000 New Jersey residents. Our membership is large and diverse, with experience designing and implementing a variety of demand side management solutions and efficiency programs across the globe. Simply stated, our members understand what works and what does not when it comes to successful demand side reduction programs.

EEA applauds the New Jersey Board of Public Utilities ("BPU" or "Board") for opening this docket on the energy efficiency and peak demand reduction portions of the Clean Energy Act. As the least cost energy resource, strong energy efficiency policy should form the backbone of the Garden State's efforts to transition to a clean energy economy. Not only does energy efficiency decrease GHG emissions and associated co-pollutants from the generation sector, it decreases energy costs for all ratepayers while right-sizing the grid and hardening it from severe storm events.

We hope these comments, along with the individual comments of our member companies and partners, can provide the BPU with the information required to create a framework for a thriving energy efficiency industry in New Jersey. Further, EEA is of the understanding that this opportunity to comment is just the first of many. The Clean Energy Act directs the Board to establish multiple avenues for stakeholder involvement in the design of the programs as well as the opportunity to review the proposed program guidelines before their final implementation as well as continued engagement through the Independent Advisory Committee. EEA and its member companies look forward to participating in all these venues.

## II. BACKGROUND

On May 23, 2018, Governor Murphy signed P.L. 2018, c, 17, the Clean Energy Act ("Act"), which directed both the Board and New Jersey's investor-owned electric and gas utilities to act regarding energy efficiency. Specifically, the Act states that "each electric public utility shall be required to achieve annual reductions in the use of electricity of two percent of the average annual usage in the prior three years within five years of implementation of its electric energy efficiency program."[1] Additionally, "[e]ach natural gas public utility shall be required to achieve annual reductions in the use of natural gas of 0.75 percent of the average annual usage in the prior three years within five years of implementation of its gas energy efficiency program."[2] The Act also requires that the BPU conduct and complete a study to determine the energy savings targets for full economic, cost-effective reductions, and the time frame for achieving the reductions. In conducting the potential study, the board is required to accept "comment and suggestions from interested parties."[3]

On January 22, 2019, the Board issued a Notice inviting all interested parties to attend a public hearing, held February 1, 2019, to present their views on twelve questions considered relevant by Board Staff. EEA and several of its member companies and organizational partners offered oral testimony at the February 1 hearing. Additionally, the Board invited written comments by interested parties to be submitted by Friday, February 15, 2019. EEA's comments aim to comprehensively respond to every question raised by the Board staff, as well as important additional considerations.

## III. COMMENTS

Overall, EEA is encouraged by the scope of the BPU's questions to assist it in designing an energy efficiency program that will make New Jersey a leader in energy efficiency. The plain text of the Act contains numerous factors the Board and regulated utilities are required to consider in the design and implementation of the program. EEA believes that those requirements are largely reflected in the twelve questions presented by the BPU in this docket. In answering

[1] C.48:3-87.9 3(a).
[2] *Id.*
[3] C.48:3-87.9 3(b).

each question posed by the Board, EEA relied on the expertise of its staff and national partners, as well as the experience of its various member businesses. We believe that these comments provide the information necessary to craft an innovative energy efficiency program.

**1. WHAT ARE SOME BEST PRACTICES FOR ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS FROM LEADING STATES (MASSACHUSETTS, RHODE ISLAND, CALIFORNIA, ILLINOIS, ETC.) – INCLUDING, BUT NOT LIMITED TO, ADMINISTRATIVE STRUCTURES, PERFORMANCE INCENTIVES, COST- BENEFIT ANALYSES, DECOUPLING POLICIES, AND EVALUATION – THAT NEW JERSEY CAN IMPLEMENT TO REACH ITS ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION GOALS?**

EEA is encouraged by the Board's willingness to adopt best practices from leading states on energy efficiency. While NJ does not need to reinvent the wheel, it is uniquely positioned to innovate and leverage lessons learned to create a thriving energy efficiency economy in the State. Regarding this specific question, however, EEA will limit its comments to discussion of ratemaking and rate design structures and answer questions related to administrative structures, cost-benefit analysis, and evaluation in its responses to other questions.

A strong energy efficiency resource standard should be complemented by strong ratemaking and rate design mechanisms that ensure energy efficiency and demand reduction are a core part of the utility business model and customers' interaction with their utility. While ratemaking and rate design are closely intertwined topics, they differ in important ways. Ratemaking is best defined as those incentives and factors used to determine a utilities revenue requirement in a base rate case. On the other hand, rate design are those incentives and factors used to determine an individual ratepayer's bill. Most simply, ratemaking determines utility incentives, while rate design determines customer incentives.

Regarding ratemaking, EEA proposes the Board pursue full revenue decoupling alongside Performance Incentive Mechanisms ("PIMs") that reward utilities for measurable outcomes and progress made in categories that support public policy goals, such as demand-side management, peak reduction, customer engagement, and low-income assistance, among others. Implementing these policies alongside the Act's savings targets will assist in making energy efficiency a central part of utilities' business model.

EEA recommends a well-designed full revenue decoupling measure as a key pillar of New Jersey's energy efficiency programs. Full revenue decoupling can serve to remove any disincentive that may exist for utilities to pursue demand-side reduction to its full cost-effective potential. Such a decoupling mechanism would address the throughput incentive, whereby utilities recover rising costs by increasing their volumetric sale of electricity to each customer. By decoupling volumetric electricity sales from utility revenues, utilities would no longer face revenue erosion when customers decrease electricity consumption and sales decline. Revenue decoupling varies littles from current cost-of-service ratemaking. The chief difference is that revenue decoupling includes a target revenue requirement set for each year between rate cases, and an adjustment mechanism that adjusts rates up or down to reflect differences between a utility's target revenues and actual revenues. Between 2009 and 2015 the number of electric utilities with revenue decoupling doubled from 12 to 25, with 16 states having adopted some form of revenue decoupling.[4]

Decoupling would provide numerous advantages to New Jersey utilities as it relates to energy efficiency. First, revenue decoupling would reduce the pressure on all utilities to seek increased fixed charges to cover rising costs. To the extent that a customer's bill is a fixed charge, it increases the payback period for demand-side efficiency measures and reduces customer control over bills. Therefore, keeping rates largely volumetric using revenue decoupling would keep control in the hands of customers, and stop the trend of increasing customer charges. Second, rate changes under decoupling are symmetrical and typically modest in size; in the event of over-collection, customers are refunded through a bill credit. Alternatively, if a utility under-collects, a surcharge is added to customers' bills. It is well documented that revenue decoupling does not usually result in more than a three percent change in customer's bills each period—and usually much less.[5] Further, it has been observed that nearly 40% of all revenue decoupling adjustments nationwide result in customer refunds.[6] Finally, revenue decoupling mechanisms can be

[4] Berg *et al.*, ACEEE, THE 2016 STATE ENERGY EFFICIENCY SCORECARD, at 45 (Sept. 2016), *available at:* http://aceee.org/sites/default/files/publications/researchreports/u1606.pdf
[5] Pamela Morgan, A DECADE OF DECOUPLING FOR US ENERGY UTILITIES: RATE IMPACTS, DESIGNS, AND OBSERVATIONS (Dec. 2012).
[6] *See Id.*

designed with additional consumer protections that mitigate potential rate shocks and ensure sufficient oversight of utility operations.

In addition to full revenue decoupling, EEA recommends the Board design Performance Incentive Mechanisms ("PIMs") to incent utilities to meet and exceed public policy goals, specifically increasing the deployment of energy efficiency interventions. PIMs are financial incentives that aim to reward utilities for reaching or exceeding program goals, regardless of whether they are related to efficiency. PIMs can be used for a multitude of desired policy goals, such as energy efficiency, advanced metering, peak load reduction, and reliability, among others. By rewarding utilities for performance, in addition to investment, New Jersey could better meet its public policy goals and adapt to the changes underway in the regulated utility industry.

Many jurisdictions already use the type of PIMs proposed by the EEA. In its 2016 State Score Card, American Council for an Energy-Efficient Economy ("ACEEE") found that 28 states offer a performance incentive for at least one major electric utility.[7] The type of compensation a utility receives under a PIM takes several forms. For instance, compensation could be based on shared savings, and would grant the utility a share of the estimated net benefits that result from their EE&C programs. Alternatively, the PIM could provide EDCs with a bonus at a set rate for each MWh of load savings beyond their savings target. Of the different types of PIMs, EEA supports a multi-factor incentive based on performance, and urges the BPU to explore the incentives currently in place in states like Rhode Island, Massachusetts, and New York. EEA discusses PIM design in greater detail in response to Question 11.

Ratemaking is only half of the equation. The other set of policies critical for successful energy efficiency programs is rate design. Rate design are those cost recovery structures that ratepayers are exposed to on their utility bills. There are three principles, articulated by ACEEE, that EEA supports as it relates to rate design:

[7] Berg *et al.*, ACEEE, THE 2016 STATE ENERGY EFFICIENCY SCORECARD, at 45 (Sept. 2016), *available at:* http://aceee.org/sites/default/files/publications/researchreports/u1606.pdf

- **Promoting Efficiency and Conservation:** Rates should send price signals to customers to discourage wasteful use of electricity. This principle underscores that rates should be cost-based, and send accurate price signals to customers related to the long-run marginal cost of service. In addition to price signals being accurate, they must also be actionable, meaning customers can modify their energy usage to respond the price signals they receive.

- **Rate Simplicity:** Rates should be easy for customers to understand and respond to accordingly. This principle is important to the present conversation, because customers cannot respond to a price signal unless they understand it. However, rate simplicity should not be pursued in a vacuum, and instead should work to achieve efficiency and utility revenue stability.

- **Utility Revenue Stability:** Rates should allow utilities the ability to earn Board-authorized revenues to maintain financial health.[8]

At a minimum, good rate design means avoiding disproportionate levels of fixed charges or any shift toward straight-fixed/variable ("SFV") rate design. Any portion of a customer's bill that is fixed prevents that customer from saving money by becoming more energy efficient, and increases payback periods for energy efficiency investments. For example, a recent ACEEE report examined several different rate designs with varying degrees of fixed charges ranging from $10, $25, and $50. The report found that moving from a $5 to $25 monthly customer charge produced payback periods that were 31% longer.[9] For some energy efficiency measures this can mean several years of difference between payback periods under different rate designs. Instead, fixed charges should only recover those costs directly associated with serving the customer, rather than the distribution system at large, because in the long-run the distribution system is a variable cost that can be modulated over time through planning and demand-side investments.

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[8] Brendon Baatz, *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, at v (Mar. 2017), *available at:* http://aceee.org/research-report/u1703.

[9] *Id. at 25.*

In addition to keeping fixed charges low, Time-Varying Rates ("TVR") are an unparalleled rate design to maximize the impacts of energy efficiency investments for customer's bills and the utility grid. Specifically, EEA proposes that the Board explore the broad application of a bi-seasonal Time-of-Use ("TOU") rate with a peak-time rebate ("PTR") element as an alternative to increased customer charges or demand charges for small commercial and residential customers. If well-designed, a TOU rate structure can allow customer bills to remain largely volumetric, while sending easy-to-understand price signals to customers that better reflects the true cost of their electricity consumption and costs to the grid. The benefits of TOU rates are numerous: reduction in energy peak energy consumption (both summer and winter), decreased payback period for efficiency measures, better protection of low-income ratepayers when compared to other forms of rate-design, and measured success in decreasing peak demand and incentivizing energy efficiency across several jurisdictions. These benefits contrast strongly with increased customer charges, which can "increase overall consumption and discourage investments in energy efficiency technologies."[10] TOU rates would meet the principles outlined by EEA, and coupled with the growing AMI deployment and TOU pilots, New Jersey is well-positioned to implement TOU rates using its existing authority, and with the further deployment of AMI currently proposed by some of the State's utilities.

TOU rates are a form of time-variable pricing whereby the volumetric fee for electricity varies depending on the time of day or the season. The primary purpose of TOU rates is to send customers a price signal that more accurately reflects the costs of their usage in a way that is easy to understand. TOU rates allow better customer interaction with the grid by charging a higher price for electricity during on-peak hours when costs are highest for utilities, and lower charges when cost is the lowest. Thus, TOU rates better reflect the true cost of supplying electricity to customers than existing flat rate structures. Although TOU rates are designed to reflect the true cost of electricity, the rate variations are announced ahead of time on a fixed schedule. This provides customers with more predictable prices, and does not expose them to the full risk of the real-time electricity prices.

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[10] Brendon Baatz, *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, at iv (Mar. 2017), *available at:* http://aceee.org/research-report/u1703.

TOU rates can be designed in several ways to produce energy savings, peak reduction, and allow greater customer interaction with the grid. The portion of TOU rates shown to have greatest impact on peak reduction and energy efficiency is the peak to off-peak period ("POPP") ratio. The POPP is the ratio of the price charged for peak period consumption to that charged for off-peak consumption. POPP ratios typically range from 1:1 to 7:1. Studies have found that a ratio of 2:1 result in a 5% reduction in peak, while a ratio of 5:1 result in approximately 10% reduction in peak.[11]

Another important design element of TOU rates is the length of the peak period, which correlates with on-peak hours when load reduction is most needed.[12] According to the Rocky Mountain Institute ("RMI"), TOU durations can range from 4 to 16 hours, but the best customer response comes from durations that are as short as possible while still capturing the necessary peak hours.[13] Surveys show that the best peak durations are typically no longer than 5 hours. Additionally, TOU rates typically have 3 or fewer pricing periods, including bi-seasonal price variation.[14] EEA recommends that the Board and EDC's consider a bi-seasonal program with 5- to 6-hour peak durations with at least a 5:1 POPP ratio.

In addition to a bi-seasonal TOU rate, EEA also recommends the Board and EDCs explore the additional element of a Peak-Time Rebate ("PTR"). A PTR structure awards customers with a rebate for energy saved during peak events announced ahead of time by a utility. This is a low-risk option compared to other forms of peak pricing, because there is no associated penalty with a PTR, only potential savings. According to 2015 study by the Department of Energy, the average peak demand reduction for customers in a PTR program programs was 11%.[15]
In addition to peak-load reduction, TOU rates can also have a positive impact on payback periods for efficiency measures, especially when compared to increased fixed charges or demand

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[11] Herman K. Trabish, *Rate design roundup: demand charges vs. time-based rates*, UTILITY DIVE (Jun. 2 2016), http://www.utilitydive.com/news/rate-design-demand-charges-time-based-rates/419997/.
[12] Aman Chitkara *et al.*, *A Review of Alternative Rate Designs*, at 30.
[13] Herman K. Trabish, *Rate design roundup: demand charges vs. time-based rates*, UTILITY DIVE (Jun. 2 2016), http://www.utilitydive.com/news/rate-design-demand-charges-time-based-rates/419997/.
[14] *Id.*
[15] Neil Strother, *Time-Based Rates: What Works, What Doesn't*, NAVIGANT RESEARCH (Jun. 30 2015), https://www.navigantresearch.com/tag/time-of-use-pricing (citing *Interim Report on Customer Acceptance, Retention, and Response to Time-Based Rates from the Consumer Behavior Studies*, U.S. DEP'T OF ENERGY, *available at*: https://www.smartgrid.gov/files/CBS_interim_program_impact_report_FINAL.pdf).

charges. ACEEE reviewed payback periods for fourteen energy efficiency measures or programs under twenty rate-design scenarios.[16] It found that broadly, TOU rates decrease the payback period for efficiency measures. This contrasts with customer charges, which can significantly increase payback periods for efficiency measures. For instance, the same study found that moving from a $5 to a $25 customer charge increased payback periods by 25-34%, depending on the measure.[17] Such a large increase in payback periods would have a chilling effect on the adoption of efficiency measures by ratepayers, and undermine demand-side reduction programs in the State.

Other jurisdictions have documented success with TOU rate programs. One example is the program piloted and adopted by Oklahoma Gas & Electric (OG&E). OG&E's smart meter-enabled SmartHours opt-in program offers four pricing levels for peak time periods on weekdays from 2 p.m. to 7 p.m. during the months of June through September.[18] The customers' off-peak rate is $0.05/kWh, while their peak period rates, communicated a day in advance, range from the standard $.09/kWh to a high $.18/kWh, with a critical peak of $.42/kWh.[19] A free smart thermostat enables customers to manage their household usage. The program was piloted in Norman, Okla., in 2011 and deployed across the OG&E service territory in 2012.[20] Almost 15%, or 115,000, of the utility's residential and business customers save an average of $200 per summer on the program. The SmartHours program has produced an approximate peak demand reduction of 150 MW and has enabled OG&E to delay building incremental thermal generation.[21] Because of the success of the SmartHours program, OG&E plans to continue promoting SmartHours and has also introduced a marketing campaign to increase the use of smart thermostats.

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[16] Brendon Baatz, *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (Mar. 2017), *available at:* http://aceee.org/research-report/u1703.
[17] *Id.*
[18] Herman K. Trabish, *Rate design roundup: demand charges vs. time-based rates*, UTILITY DIVE (Jun. 2 2016), http://www.utilitydive.com/news/rate-design-demand-charges-time-based-rates/419997/.
[19] *Id.*
[20] *Id.*
[21] *Id.*

Meanwhile, Baltimore Gas and Electric's (BGE) Smart Energy Rewards program provides an excellent and recent example of a PTR program. This is considered the largest dynamic pricing program in the United States, with 20% of all residential dynamic pricing customers in 2017.[22] Under this program, BGE gives customers a $1.25 bill credit in return for reducing energy usage during peak events. The program results in over 300MW of peak demand reduction each year.[23] Based on the success of these two programs, EEA recommends similar programs be rolled out in New Jersey to help reduce peak from the residential and commercial sectors, while also pursuing demand response resources.

Finally, when considering new rate designs, customer education and outreach will be critical to the success of the program. One example of a best practice around TOU customer engagement can be found in Maryland, where the Commission recently determined that outbound communications to coach customers on their new rates "can lessen any downside risk and help customers have a successful experience with time-varying rates."[24]

In sum, ratemaking and rate design are core elements of successful energy efficiency programs. Both utilities and ratepayers will respond to incentives, and those incentives must be aligned with the important public policy goals of energy efficiency and peak demand reduction. By implementing ratemaking that makes energy efficiency spending a revenue opportunity for utilities, alongside rate design that empowers customers to control how and when the consume electricity, New Jersey can create a robust efficiency market that provides benefits to all of its participants.

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[22] Coley Girouard, Behavioral demand response gives Baltimore Gas and Electric a business reason to reduce peak usage, Utility Dive (Jan. 28, 2019) *available at*, https://www.utilitydive.com/news/behavioral-demand-response-gives-baltimore-gas-and-electric-a-business-reas/546895/

[23] *Id.*

[24] Maryland Public Service Commission, #8, 12/12/2018 AM; NL# 223000, 223023, 223189, 223204, https://webapp.psc.state.md.us/newIntranet/Maillog/content.cfm?filepath=C:\Casenum\Admin%20Filings\200000-249999\223250\No.%208%20-%2012-14-18%20AM%20TOU%20Pilots.pdf

## 2. HOW SHOULD "FULL ECONOMIC, COST EFFECTIVE POTENTIAL" BE DEFINED IN TERMS OF THE ENERGY EFFICIENCY TARGETS TO BE ESTABLISHED BY THE BOARD?

At the outset, EEA would note that this question is directly tied to Question 8, as well as the Board's choice of Cost Benefit Analysis (CBA). Therefore, EEA believes these topics should be considered together, and will limit its response to this question to only a high-level response.

Section 3(b) of the Act requires that the Board:

> Shall conduct and complete a study to determine the energy savings targets for full economic, cost-effective potential for electricity usage reduction and natural gas usage reduction as well as the potential for peak demand reduction by the customers of each electric public utility and gas public utility and the timeframe for achieving the reductions. The energy savings targets for each electric public utility and gas public utility shall be reviewed every three years to determine if the targets should be adjusted. The board, in conducting the study, shall accept comments and suggestions from interested parties.

Based on the plain language of the act, the Board is required to conduct a study that determines the "full economic, cost-effective potential" for electric usage reduction, natural gas usage reduction, and peak demand reduction. This study is to serve as the basis for determining energy saving targets for the regulated utilities. The Act does not define "full economic, cost-effective potential," but Section f(1) does direct the board to establish a stakeholder process to evaluate the "economically achievable energy efficiency and peak demand reduction requirements."

Read together, it seems reasonable that the Act intends for "full economic, cost-effective potential" to determine the absolute maximum level of energy efficiency, regardless of program costs. This is similar to the potential study conducted by Pennsylvania's Statewide Evaluator ("SWE"), which defines full economic cost-effectiveness as the subset of the technical potential that is economically cost-effective as compared to conventional supply-side energy resources. Further, its definition for full-economic potential considers only the cost of the measures themselves, ignoring any programmatic costs that would actually be required. Then, the amount

of "full economic, cost-effective potential" that is "economically achievable" is determined through a stakeholder process and the input of the independent advisory committee as discussed in Section f(1) of the Act. What the final target actually is, depends on the selection of the CBA, which EEA discusses in more detail in its response to Question 8. However, the simplest definition is that energy efficiency should be compared on equal footing to traditional supply, and should be pursued over traditional supply whenever it costs less.

### 3. WHAT MARKETS SHOULD BE SERVED STATEWIDE? WHAT PROGRAMS SHOULD HAVE CONSISTENT INCENTIVES, ELIGIBILITY CRITERIA AND RULES ACROSS ALL SERVICE TERRITORIES? SHOULD THE PROGRAMS BE DELIVERED BY A SINGLE STATEWIDE IMPLEMENTER? WHAT ARE THE BARRIERS TO IMPLEMENTING A STATE-WIDE APPROACH, AND HOW CAN THEY BE OVERCOME?

While the existing statewide programs have been successful in accomplishing their goals, and provided important lessons for efficiency programs in the State, EEA strongly believes that the programs should not be delivered by a single statewide implementer. Instead, utilities should be empowered to propose and administer programs, with the oversight of the advisory committee and the Board, that best fit their service territories. This is especially important given the fact that the Act places the responsibility and threat of financial penalties squarely on the shoulder of utilities. Moreover, Section f(2) of the act is clear in requiring that each electric and gas public utility:

> Shall conduct a demographic analysis as part of the stakeholder process to determine if all its customers are able to participate fully in implementing energy efficiency measures, to ***identify market barriers that prevent such participation***, and to make recommendations for measures to overcome such barriers. (emphasis added).

Therefore, the onus should be on the utilities to administer programs, as well as conduct studies to identify and solve market barriers within their service territory. This structure is bolstered by the fact that, for the majority of energy efficiency offerings, electric and gas utilities are the single and most recognizable point of contact that ratepayers have with the energy system.

Therefore, utilities are uniquely positioned to leverage their relationship with their customers to provide energy efficiency measures and programs and utilize it to manage their grid resources.

For example, our members report that some of their most successful program offerings are those in which they present the utility brand in their marketing materials, ID badges, and even the clothing they wear. These programs are further bolstered by the wealth of customer data which is helpful in targeting and reaching mass market customers. This relationship only grows in importance when it comes to things like sharing usage data directly with customers, discussed in depth in EEA's response to Question 7, and providing innovative rate design options outlined in EEA's answer to Question 1.

Although EEA believes utilities are ultimately responsible for program administration and barrier identification, there are three rate classes known nationally to regularly face barriers to energy efficiency deployment that should be addressed at the outset the analysis process. First, EEA recommends the adoption of consistent eligibility requirements and incentive payments regarding the Low and Moderate Income ("LMI") sectors. There is significant data showing low-income ratepayers tend to live in less efficient housing and, as a result, spend a much greater share of their household incomes on utility bills than do higher income households. In New Jersey especially, low-income customers may live in older homes with inefficient cooling or heating systems. Additionally, low-income customers living in rental properties have fewer opportunities to upgrade their appliances, and may not have control of their heating or cooling. No low-income ratepayers should be prevented from availing themselves of energy efficiency incentives solely based on the service territory in which they reside. Therefore, EEA recommends setting a statewide income threshold and 100% incentive level for this segment. Additionally, EE programs designed for the low-income residential space should work closely with Weatherization Assistance Program ("WAP") administrators to ensure that utility programs and WAP programs coordinate in a manner that allows those residents to take advantage of both programs simultaneously.

Second, special consideration should be given to the multifamily housing sector. Programs should be designed to meet the needs of both building owners/landlords and their tenants. Many

states have struggled with the split-incentive problem as well as problems with program gaps. The split incentive problem refers to the fact that building owners often only avail themselves of efficiency upgrades in common areas served by a master meter paid for by the landlord or building owner, and not individual dwelling units where utility bills may be paid for by tenants. This also exposes a gap in program administration, whereby the building falls into a program administered by a C&I third party, but the tenants of that building qualify for program offerings provided by a different third party. To prevent this, utilities should pay attention to multifamily program design during the planning phase of their programs.

Third, the small business sector sometimes has trouble utilizing mass market efficiency offerings for a variety of reasons. Typically, these businesses may not own their building, may not have access to capital for investments, and may have unique energy usage characteristics that make them ill-suited to standard program offerings. Due to the significant diversity of customers in the rate class, utility programs should place significant emphasis on servicing this sector through innovative program offerings and directed marketing efforts.

Given these considerations, EEA recommends that utilities administer their own programs best suited for their service territory. However, there should be a minimum level of standards and service, especially in the LMI, multifamily, and small business sector. In this model, the role of the Board and Advisory Committee should be limited to oversight and evaluation that includes a consistent and transparent means of tracking utility progress to ensure accountability across the state. This design is consistent with the language of the Act, and best practices from other states in the region.

### 4. HOW CAN THESE PROGRAMS BE DELIVERED AT THE LOWEST COST TO RATEPAYERS, WHILE ALSO PROVIDING OPTIMAL EASE OF USE AND CUSTOMER SERVICE AND MAXIMIZING MARKET UTILIZATION?

While EEA discusses cost controls in more detail in its response to Question 5, EEA believes optimal ease of use, customer service, and maximizing market utilization are best achieved when taking a customer-centric approach to energy efficiency, which is best facilitated through performance-based program designs that allow implementers to drive successful models for

customer engagement and adapt to a quickly changing market. Delivering programs at the lowest cost to ratepayers *via* customer-centric approach involves the following principles:

- Simplicity in design and delivery of incentives to the market
- Flexibility in implementation by utilities and/or third-party implementers
- Leveraging private capital that can supplement ratepayer capital

Most importantly, it must be very easy for utility customers to participate in programs. Customer friction is typically the largest driver of costs (hard and soft) that are higher than necessary. Therefore, utility program offerings must be made clear in marketing materials, and utility outreach. Simply stated, customers will not leverage programs or rebates that they are unaware of, or seem too burdensome to undertake. For example, in recent years many utilities have had success with direct sale online market places that discount efficiency products at the point of purchase, rather than through a rebate process, greatly increasing penetration of the products on offer. Innovative solutions such as this should be pursued at every rate class and program to ensure ratepayers have easy and understandable access to energy efficiency.

### 5. WHAT IS THE BEST WAY TO MINIMIZE ADMINISTRATIVE COSTS AND AVOID DUPLICATIVE ADMINISTRATIVE STRUCTURES?

EEA believes that administrative costs will be minimized by deploying programs at scale by each utility, and ensuring programs are run continuously once they are established. Administrative costs are at their greatest during program design and ramp up. Once efficiency programs are administered, the portion of spending allocated to administration drops. The cost of program administration continues to decline as lessons are learned, and implementers fine tune their offerings. Moreover, the costs of program oversight are minimized when utilities meet reasonable reporting requirements that are evaluated by a third party. Reporting and oversight are discussed in more detail in EEA's response to Question 12

Another important consideration for containing program costs is ensuring that once programs are up and running, there is sufficient budget to ensure they are not ramped down mid-implementation cycle. This has occurred in other states, where due to budget limits, or program

targets being hit ahead of schedule, programs are ramped down. This negatively impacts programs from both the customers' and implementers' point of view. For customers, being unable to take advantage of a program discourages current and future participation in program offerings. Further, companies are forced to lay off staff or suspend operations when sitting idle waiting for a budget to be reallocated at the end of a program year or phase. Both can be mitigated by ensuring sufficient budget during the program planning process.

### 6. WHAT CONSIDERATIONS SHOULD BE MADE DURING A TRANSITION PERIOD THAT WOULD RESULT IN AS FEW DISRUPTIONS AS POSSIBLE TO THE MARKET PLACE?

To minimize potential disruptions to the existing energy efficiency programs, companies, and workforce, EEA recommends that the existing BPU programs continue uninterrupted until after utilities have contract with their third-party implementers and new programs are fully launched. This transition would be further enhanced by initiating programs on a staggered basis, whereby the BPU would begin winding down an existing program when a complimentary utility program is initiated. If the BPU were to end programs before utility programs are available, there would be confusion among customers who no longer have access to incentives, while EEA members would experience significant job losses. Every time a program needs to be re-launched, administrative costs are increased at direct cost to ratepayers. Therefore, a customer-centric approach to the transition period is important to ensure a smooth transition between existing and new programs.

### 7. WHAT IS THE BEST WAY TO MAXIMIZE THE USE OF CONSUMER DATA HELD BY THE UTILITIES, AND WHAT PROCEDURES ARE RECOMMENDED FOR SHARING THAT DATA?

Customer data collection, sharing, and analysis can provide significant benefits to both ratepayers and utilities. Although New Jersey does not yet have AMI, sharing monthly data is still important to the development of the efficiency market. Furthermore, the state should prepare for its deployment to head off any potential time lag between AMI deployment and ratepayers capturing the concrete benefits of such collections. Several states have already carefully considered the data privacy and electronic access to data held by utilities. These states

include California, Illinois, New York, and Texas.[25] To this end, EEA recommends the Board examine the 10-point framework provided by Mission:data Coalition in its comments on this docket. The 10 elements are:

1. Definition of Energy Data: The definition should include customer data (name, address, phone number, etc.), billing data, usage data, and system data necessary for demand response data.

2. Format and Transmission Protocol: The BPU should find a nationally-recognized, open standard, that adhere to industry best-practices to transfer standard customer data to authorized third parties. One example of such a transmission protocol is Green Button Connect ("GBC").

3. Third Party Eligibility Criteria: There should be a standard set of eligibility requirements for third parties to electronically receive customer data from utilities.

4. Binding Terms of Use: Third parties should be required to agree to binding terms of use when registering with a utility to receive customer data that includes a privacy policy, prohibited uses, as well as a waiver of liability.

5. Clear Authorization Language: Standardized information that is clear and simple to understand should be provide to the customer prior to consenting to have their data shared.

6. Streamlined Customer Experience and Ease-of-Use: Require utilities to adhere to best practices in online authorizations to streamline the customer experience.

7. Provide Certain Platform Features for Third Parties: This includes testing and production environment as well as the ability for customers to authorize two entities at once.

[25] Murray *et. al.*, ENERGY DATA: UNLOCKING INNOVATION WITH SMART Policy, Mission:Data, at 3. (Dec. 2017).

8. Revocation Process: The Revocation process should describe how, and under what circumstances, a customer may revoke a third party's authorization.

9. Enforcement Process Against Bad Actors: The Board should define its enforcement processes against bad actors to clarify the roles and responsibilities of utilities and third parties.

10. Quality of Service: Transparency: utilities should have a quality of service metric so that they are held to a high standard in the provision of their information and technology systems, such as uptime.

EEA emphasizes that customer authorization of energy usage data to third parties should be validated based on information that the customer is likely to know. Most customers do not know their utility account number or credentials off the top of their head. The BPU should place an emphasis on energy data disclosure rules that take this into account and reduce the barriers for customers to share their energy usage data.

**8. WHAT DATA, ASSUMPTIONS, METHODOLOGY, AND CONSIDERATIONS (E.G., NON-ENERGY BENEFITS) SHOULD BE USED TO PERFORM COST-BENEFIT ANALYSES?**

There are two main factors the board should consider in its CBA; what CBA to use, and what inputs and assumptions should be used in the CBA. Based on the plain language of the Act, EEA believes the Board must employ a Societal Cost Test ("SCT") or similar test that values the environmental impacts of energy efficiency investments. Specifically, Section d(2) of the act states "the energy efficiency programs and peak demand reduction programs ***shall*** have a benefit-to-cost ratio of greater than or equal to 1.0 at the portfolio level, considering both economic ***and environmental factors . . .***" (emphasis added). Based on the language of the Act, the CBA chosen by the board must include environmental factors.

Relating to inputs, EEA recommends the Board examine the National Standard Practice Manual ("NSPM"). Released in 2017 by E4TheFuture and the National Efficiency Screening Project,

the NSPM is a detailed manual designed to guide regulators on how to develop their own jurisdictional cost-effectiveness tests of utility customer-funded energy efficiency programs. The NSPM relies on six guiding principles:

1. Recognize that energy efficiency is a resource;
2. account for applicable policy goals;
3. account for all relevant costs and benefits, even if hard to quantify the impacts;
4. ensure symmetry across all relevant costs and benefits;
5. conduct a forward-looking, long-term analysis that captures incremental impacts of energy efficiency; and,
6. ensure transparency in presenting the analysis and the results.[26]

While the NSPM lays out a detailed process and designing a cost-effectiveness test, its categorization of utility and non-utility impacts, and participant impacts provide a useful illustration of impacts to consider:

| Illustrative Utility System Costs | Illustrative Utility System Benefits |
|---|---|
| • EE Measure Costs (utility portion – e.g. rebates) | • Avoided Energy Costs |
| • EE Program Technical Support | • Avoided Generating Capacity Costs |
| • EE Program Marketing/Outreach | • Avoided T&D Upgrade Costs |
| • EE Program Administration | • Avoided T&D Line Losses |
| • EE Program EM&V | • Avoided Ancillary Services |
| • Utility Shareholder Performance Incentives | • Wholesale Price Suppression Effects |
| | • Avoided Costs of RPS Compliance |
| | • Avoided Costs of Environmental Compliance |
| | • Avoided Credit and Collection Costs |
| | • Reduced Risk |
| | • Increased Reliability |

[27]

In addition to utility system benefits, there are several Non-Energy Benefit ("NEBs") or Non-utility benefits that should be quantified and included in the cost-benefit test. These benefits can

[26] NSPM Standard Overview, NESP (May 2018) *available at* https://nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM-Standard-Overview-May-2018.pdf
[27] *Id.*

include participant costs, impacts on low-income customers, other fuel impacts, water impacts, environmental impacts, public health impacts, economic development, and energy security, among others. The NSPM provides significant detail on how to treat each category of impact and cost, as well as the sub-categories that comprise them.

Massachusetts employees a CBA test that includes all program administrator costs and program participant costs. Administrator costs include program implementation expenses, evaluation costs, proposed performance incentives, and tax liability for performance incentives. Additionally, participants costs include the initial costs incurred by customers because of their participation in the program. [28]

On the benefits side of the its test, Massachusetts includes the value of avoided costs and non-energy impacts ("NEIs"), or non-resource benefits, resulting from the program over the lifetime of the measures. Massachusetts resource benefits include avoided energy valued at different times, avoided capacity valued at peaking periods, avoided transmission, avoided distribution, and effects on market prices. Additionally, NEIs are the values associated with EE programs apart from energy savings, such as reduced costs for operation and maintenance, longer equipment replacement cycles, and productivity improvements, reductions in costs associated with reduced customer arrearages, service terminations, and reconnections, and other measurable benefits due to the installation of the energy efficiency.[29]

Recently, PSE&G proposed a SCT that mirrors Massachusetts CBA inputs. In its filing PSE&G outlines its assumptions for five forms of CBAs required by the Board Minimum Filing Requirements (Participant Cost Test, Program Administrator Cost Test, Ratepayer Impact Measure Test, Total Resource Cost Test, and Societal Cost Test. For each of the 5 CBA tests, PSE&G used the following assumptions:

- Lifetime Avoided Electric Supply Costs

[28] Mass Save, Massachusetts Joint State Electric and Gas Three-Year Energy Efficiency Plan 2019-2021, at 117 (Apr. 30, 2018) *available at*, http://ma-eeac.org/wordpress/wp-content/uploads/2019-2021-Three-Year-Energy-Efficiency-Plan-April-2018.pdf
[29] *Id.*

- Lifetime Avoided Electric Capacity Costs
- Lifetime Avoided Natural Gas Supply Costs
- Lifetime Demand Reduction Induced Price Effects
- Lifetime REC Avoided Purchases
- Lifetime Wholesale Volatility Value
- Lifetime Avoided Replacement
- Lifetime Avoided T&D Costs
- Lifetime Environmental Benefits
- Economic Benefits
- Discount Rate

Based on the foregoing, EEA believes the SCT and assumptions included by PSE&G in its EE-CEF should be the starting point for a conversation around how to best include environmental impacts and other NEBs in the CBA. Further Section f of the Act requires a stakeholder process to evaluate the CBA and its input. EEA recommends the utilization of the NSPM to guide that process. Such a process would be consistent with the Act, and leverage best-practices already in place by other states.

**9. WHAT SHOULD THE MEMBERSHIP OF THE INDEPENDENT ADVISORY COMMITTEE BE? WHAT IS THE PROPER ROLE OF THE INDEPENDENT ADVISORY COMMITTEE? WHAT EXISTING MODELS OR BEST PRACTICES SHOULD THE BOARD CONSIDER IN ESTABLISHING THE INDEPENDENT ADVISORY COMMITTEE?**

EEA believes that the establishment of an Independent Advisory Committee ("Committee") is critical for successful energy efficiency programs. Section f of the Act states:

> As part of the stakeholder process, the board shall establish an independent advisory group to study the evaluation, measurement, and verification process for energy efficiency and peak demand reduction programs, which shall include representatives from the public utilities, the Division of Rate Counsel, and environmental and consumer organizations, to provide recommendations to the board for improvements to the programs.

EEA believes this language establishes the minimum scope and make-up of the Committee, and recommends that the Board expand the scope and membership of the Committee in three key ways. First, in addition to the Committee's directive to study the EM&V portions of the process, the Committee should be involved in the design and oversight of energy efficiency plan filings. This is best accomplished if the Committee has the resources to hire a third-party intervenor as well as independent consultants to evaluate utility proposals and metrics. The Act is clear in expectation the Board will open multiple avenues of stakeholder input, and the Committee is perhaps the most important moving forward.

Second, as with all of the other topic areas described in these comments, the Committee process should be transparent. Decisions that affect millions of NJ ratepayers and businesses should not be decided in a black box. Instead, Committee minutes, reports, and decisions should be non-confidential, with certain meetings open to the public.

Third, EEA believes that it and other stakeholders be included in the Committee. EEA's constituents are the businesses who will ultimately be responsible for the successful implementation of energy efficiency programs, and already run many existing programs in the state. Coupled with the expertise of EEA staff and member businesses, it is well positioned to substantively add to the Committee in a positive and productive fashion.

EEA believes there are two existing Committees the Board should look too for guidance. First, is the Massachusetts Energy Efficiency Advisory Council (EEAC) created by the Green Communities Act. The EEAC guides the development of energy efficiency plans by the State's utilities, and monitors the implementation of the plans. That committee has 15 voting organizations and 11 non-voting organizations. One important note is that individual utilities on that Committee are not able to vote.

A second example is the Connecticut Energy Efficiency Board ("EEB"), a group of advisor who "utilize their experience and expertise with energy issues to evaluate, advise, and assist the state's utility companies in developing and implementing comprehensive, cost-effective energy conservation and market transformation plans to help Connecticut consumer reduce energy use

in the homes and business and to help Connecticut meet its changing and growing energy needs."[30] The Connecticut EEB consists of an appointed group of 15 members that consists of state, business, and NGO organizations.

A Committee similar in structure to either Connecticut or Massachusetts would greatly assist New Jersey in its design and implementation of energy efficiency programs. Moreover, a well-design committee would increase regulatory efficiency by avoiding time-consuming and costly regulatory proceedings for every efficiency plan filing and plan change.

**10. HOW SHOULD SAVINGS FROM THE CLEAN ENERGY PROGRAM, EXISTING UTILITY PROGRAMS, BUILDING CODE MEASURES, APPLIANCE EFFICIENCY STANDARDS, OTHER STATE SPONSORED EE OR PEAK REDUCTION PROGRAMS, ETC., THAT MAY CONTRIBUTE TO MEETING SAVINGS TARGETS BE FACTORED INTO A UTILITY'S SAVINGS TARGETS, QPIS, AND PERFORMANCE INCENTIVES?**

EEA believes that the Act is clear in its treatment of existing and non-utility programs as it relates to establishing QPIs, and savings targets, as well as utility achievement of savings targets. However, EEA does not believe the Act is clear in how it treats the payment of performance incentives for utility savings targets achieved or exceeded using non-utility programs.

The Act is clear in requiring non-utility efficiency measures and programs to be considered in the establishment of QPI's as well as utility achievement of their targets. Section 3 of the Act requires that the Board adopt QPIs that consider a multitude of factors ranging from non-utility programs, code standards, weather, economic factors, growth of electric vehicles, and microgrids among many other factors. Further, Section 3 goes on to state that a public utility may apply all energy savings attributable to programs available to its customers, including non-utility programs, to achieve the targets in this section. Thus, even if a program is not run by a utility, or financial supported by ratepayer funds, a utility may count those savings so long as they accrue to a ratepayer in its service territory. EEA views this as a helpful transition measure when it comes to saving target achievement, but believes it does not comport with good principles of PIM design discussed in greater detail in Questions 1 and 11.

[30] About Page, https://www.energizect.com/connecticut-energy-efficiency-board

Simply stated, utilities should not earn performance incentives, or penalties, based on programs the utility does not directly administer or contribute funding towards. Section e(2) of the act states:

> If an electric public utility or gas public utility achieves the performance targets established in the quantitative performance indicators, the public utility shall receive an incentive as determined by the board through an accounting mechanism established pursuant to section 13 of P.L.2007, c.340 (C.48:3-98.1) for its energy efficiency measures and peak demand reduction measures for the following year. The incentive shall scale in a linear fashion to a maximum established by the board that reflects the extra value of achieving greater savings.

EEA strongly supports this language, but believes it, as well as Section e(3)(related to penalties) should be limited to those savings targets that are achieved through utility programs, or non-utility programs that a utility had a direct role in funding. Just as shareholder dollars should not be allocated to penalties for non-performance in meeting targets outside of a utilities control, ratepayer dollars should not be spent on incentives for performance in meeting targets outside of a utilities control.

### 11. HOW SHOULD PERFORMANCE INCENTIVES AND PENALTIES BE IMPLEMENTED? WHAT LEVEL OF INFORMATION WILL BE NEEDED? HOW SHOULD THEY BE COLLECTED/PAID, WITH WHAT FREQUENCY AND WHEN SHOULD THEY BEGIN IMPLEMENTATION?

As discussed in its response to Question 1, EEA believes that robust PIMs are necessary to ensure that utilities meet and exceed their energy savings targets, as well as other goals that may be established by the Board. In fact, ACEEE found that "PIMs are among the most important factors contributing to higher savings and increasing utility energy savings year to year."[31] Of the numerous PIM designs that exist, EEA recommends that the Board establish multifactor PIMs that reward utilities for *performance* in achieving or exceeding goals set by the BPU, rather than utility spending alone. Such PIMs are employed by several leading states, and comply with the plain language requirements of the Act.

[31] ACEEE, Snapshot of Energy efficiency Performance Incentives for Electric Utilities, at 1 (Dec. 2018) *available at*, https://aceee.org/sites/default/files/pims-121118.pdf

EEA recommends that PIM design be guided by a few first order principles. For example, the most recent Mass Save plan provided detailed guidance for PIM design. That plan states that performance incentives must:

- be designed to encourage Program Administrators to pursue all available cost-effective energy efficiency;
- be designed to encourage energy efficiency programs that will best achieve the Commonwealth's energy goals;
- be based on clearly defined goals and activities that can be sufficiently monitored, quantified, and verified after the fact;
- be available only for activities in which the Program Administrator plays a distinct and clear role in bringing about the desired outcome;
- be as consistent as possible across all electric and gas Program Administrators; and
- avoid any perverse incentives.[32]

Along with these guiding principles, there are roughly four categories of PIMs identified by ACEEE that the Board should explore:

- *Shared net benefits incentives*, where utilities can earn a percentage of benefits from their successful programs
- *Energy-savings-based incentives*, where utilities can earn a reward for meeting pre-established energy savings goals

[32] Mass Save, Massachusetts Joint State Electric and Gas Three-Year Energy Efficiency Plan 2019-2021, at 158 (Apr. 30, 2018) *available at*, http://ma-eeac.org/wordpress/wp-content/uploads/2019-2021-Three-Year-Energy-Efficiency-Plan-April-2018.pdf

- *Multifactor incentives*, where utilities can earn rewards for meeting pre-established goals based on multiple metrics such as energy savings, demand savings, or energy savings for low-income communities.

- *Rate-of-return incentives*, where utilities can earn a rate of return on efficiency spending, comparable to what they receive for traditional investments, sometimes with requirements for energy savings performance.[33]

Currently, 29 states use some form of PIM with 12 states implementing a share of net benefits, 3 states use savings-based models, 9 states and D.C. use multifactor, and 4 states use a return on equity models.[34] Importantly, ACEEE also found that "[9] of the top 10 states ranked by electric energy savings as a percentage of retail sales have [PIMs] in place.[35] Of those four models, EEA believes multi-factor PIM's are best suited to achieve high energy savings in Pennsylvania, and are the most consistent with the text of the Clean Energy Act.

All leading states, such as Massachusetts, Rhode Island, California, and New York, use multi-factor PIMs. For example, in 2017 leading states Massachusetts and Rhode Island achieved electric savings of 2.57% and 3.08% respectively. In those two states, PIMs work by making an incentive pool that is approximately 5% of electric spending.

For example, in Massachusetts 2016-18 plan, a three-year statewide performance incentive pool was set at a level of $100 million for electric utilities, and then allocated among program administrators. The mechanism rewarded performance on two components: savings based on the dollar value of energy saving benefits, and the dollar value of net benefits. That program set a minimum performance threshold of 75% with a maximum incentive awarded at 125% of each target. Recently the Massachusetts Energy Efficiency Advisory Council approved the 2019-

[33] ACEEE, Snapshot of Energy efficiency Performance Incentives for Electric Utilities, at 2 (Dec. 2018)
[34] *Id* at 3.
[35] *Id* at 3, *citing Dan Cross et al*, Navigating Utility Business Model Reform: A Practical Guide to Regulatory Design (RMI 2018).

2021 plan that adds new components to the incentive mechanism. These include [36] incentives to encourage program administrators to pursue active demand benefits, and incentives for service to renters. The active demand includes direct load control, demand response, behind the meter storage, and thermal storage.

Most importantly, ACEEE found that the states robust performance incentives:

> Have resulted in a cultural shift at Massachusetts utilities, making focus on energy efficiency a core part of the business. According to precious ACEEE research findings, 'the incentive structure in place has resulted in energy efficiency programs being viewed as a core business unit capable of contributing to the overall business objective of [National Grid],' and that senior executives were enthusiastic about energy efficiency.[37]

In comparison to the Massachusetts model, the New York Public Service Commission's Reforming the Energy Vision (REV) proceeding uses Earnings Adjustment Mechanisms (EAMs) that are "not more than 100 basis points [of allowed return on equity] total from all new incentives, alongside a regulatory asset construct."[38] For example, in 2017 Consolidated Edison Company of New York (Con Ed) included a mix of EAMs in its rate plans to incentivize achievements in energy efficiency, system peak reduction, and broad programs to encourage distributed energy resource integration, energy intensity across different service classes, and GHG emission reductions.

In Con Ed's case, incentive payment amounts are tied to performance in meeting the EAM metrics. Moreover, Con Ed's EE investments are treated as regulatory assets with a 10-year amortization period.

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[36] *Id.*
[37] *Id.*, at 5.
[38] *Id.*, at 7.

While Massachusetts and New York's programs are both multifactor programs based on performance, they differ in that New York's program allows for a return on equity for demand side investments in a manner similar to traditional investments. The purpose of such treatment is to make the value proposition of demand-side investments more similar to infrastructure investments. However, New York's programs still leverage a performance element for the EAMs.

In contrast to New York and Massachusetts, New Jersey does not have experience with a PIM that rewards financial incentives for performance. Recently PSE&G filed its Energy Efficiency Clean Energy Filing ("EE-CEF") which includes 22 programs over a 6-year period at a cost of $2.5 billion over the 6 years. PSE&G has proposed that it earn return on its net investment based on an authorized ROE and capital structure. Importantly, the mechanism proposed by PSEG is not tied to performance on energy savings or other targets.

While ACEEE has observed that ROE incentives without performance metrics "can reduce pressure on energy efficiency program evaluation, measurement, and verification, and this model aligns with traditional utility incentives for other program. . . ,"[39] EEA does not believe the Clean Energy Act permits the type of ROE incentive proposed by PSE&G absent a performance element.

While the Act states that adjustments may be made through adjustment to return on equity related to energy efficiency or peak demand reflecting the incentive structure as established under the Act. Section (e)(2) provides that such incentive shall be rewarded for achieving "the performance targets established in the quantitative performance indicators. . . ." Section C of the Act outlines the process for determining quantitative performance indicators:

> In establishing quantitative performance indicators, the board shall use a methodology that incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties determined pursuant to subsection e. of

[39] *Id.* at 12.

> this section and section 13 of P.L.2007, c.340 (C.48:3-98.1) are **based upon performance**, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources. (*emphasis added*)

Given that the Act requires achievement of quantitative performance indicators as a prerequisite for receiving incentive payment under the act, it does not appear that a non-performance-based ROE measure is sufficient. Therefore, EEA recommends that the Board adopt performance incentives closely modeled on the Massachusetts and Rhode Island Model. If the regulated utilities in the State feel this is insufficient, EEA recommends the Board adopt a mixed model that allows a portion of incentives to be paid on a ROE model tied to multifactor performance paid through an incentive pool.

**12. UNDER N.J.S.A. 48:3-88(3)(E), EACH ELECTRIC AND GAS PUBLIC UTILITY MUST FILE AN ANNUAL PETITION WITH THE BOARD TO DEMONSTRATE COMPLIANCE WITH ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS, COMPLIANCE WITH TARGETS ESTABLISHED PURSUANT TO THE QUANTITATIVE PERFORMANCE INDICATORS, AND FOR COST RECOVERY OF THE PROGRAMS. WHAT INFORMATION SHOULD THESE ANNUAL PETITIONS INCLUDE?**

EEA believes that the key goal of reporting under the Act should be to provide understandable, transparent, accurate, and easily accessible information for each utility's energy efficiency programs and progress towards meeting targets set by the Board. Frequent and transparent reporting allows the public and interested stakeholders to receive current information regarding energy efficiency investments. EEA believes both the content of the reports, as well as the database for the reports are critical to running successful energy efficiency programs in the state.

For reporting frequency, EEA recommends that at a minimum, utilities report progress through a semi-annual report, annual report, and to the extent programs run in 3-5 years phases, final Phase reports. This will allow the Board and the Advisory Committee, as well as members of the public, to review utility progress towards meeting annual goals, whether those annual goals were achieved, and a clear picture of savings achieved over the life of a Phase.

As for content of the reports, the annual reports should provide all information necessary to determine whether utility targets were met, whether its portfolio of programs was cost effective, and whether that utility qualifies for cost recovery and performance incentives. This information should include projected vs. actual spending, savings, and CBA information. EEA further recommends that the Board aggregate this information into a single annual report that reviews the effectiveness of the programs statewide.

In addition to the content of the reports, EEA believes that the Board must create an up-to-date and easily accessible online database that includes individual utility reports as well as Board aggregated reports. Moreover, the online portal should provide access to all regulatory documents associated with the energy efficiency program, including but not limited to:

- Board implementation orders
- Secretarial letters
- Baseline and potential studies
- Cost effectiveness tests
- Interim utility reports
- Technical Reference Manual or similar documents.
- Proposed and Final Utility Plans
- Plan Change information
- Advisory Council Reports and Minutes

In addition to this information, the Board should follow the example set by other states and create an easy to access, and easy to search electronic docket and e-filing system. For example, the Pennsylvania Public Utility Commission ("PUC") allows for direct e-filing on any docket *via* an e-filing account. After filing, any member of the public can access every document filed by any party using a consolidated docket view. This allows stakeholders to better interact with other parties involved in utility filings, and ultimately leads to a more transparent process. Such a system is critical to the success of New Jersey's programs, especially given the significant amount of documentation, and reports that will be required as programs are established and monitored.

## IV. CONCLUSION

EEA thanks the Board for this opportunity to comment on this important topic. By implementing the recommendation provided in these comments, EEA believes that the Board, utilities, and stakeholders can create programs that will make the State a leader in energy efficiency. EEA looks forward for continued opportunities for stakeholder input as the State design and implements the Clean Energy Act.

February 15, 2019

**Re: Energy Efficiency and Peak Demand Reduction Comments**

Below are my comments on the implementation of the energy efficiency and peak demand reduction programs required by the recent legislation.

**1. Ensure New Construction (Developer & Homebuilder) Market Served Same Statewide**

It is critical that the new construction (real estate developer and homebuilder) market be served statewide with consistent incentives, eligibility criteria and rules across all service territories. Developers and homebuilders work across utility service territories and any new differentiation between one service territory to another would create significant consternation and dramatically depress participation in the long run. Whatever entity administers the various programs for new construction, they just need to be the same everywhere in every aspect. They should also strive to achieve continuity with the programs currently offered by NJCEP, as many development/construction projects have been in the planning stages for years and any sudden major changes would significantly disrupt participation in energy efficiency programs for new construction statewide. Also, developers and homebuilders need to be able to choose from an open market of qualified partner organizations in any energy efficiency programs for new construction. This is because many developers have established relationships with one or more partner organizations, who in turn encourage participation by developers and homebuilders in such programs. Severing those relationships would decrease participation in such programs. Also, the various partner organizations compete with each other to keep consulting/verification costs down for the developers and homebuilders, which in turn reduces the cost of participation in such programs thereby increasing participation in the long run.

**2. Enforce NJ UCC Energy Subcode Consistently**

Currently, there is significant variation from one municipality to another in the enforcement of the Energy Subcode referenced in the NJ UCC. There are various reasons for this, but the result end result is that:

a) Many, if not most, newly constructed buildings are not actually compliant with the Energy Subcode referenced in the NJ UCC. This has a long-term effect on NJ's energy usage;
b) NJ's efforts (including NJCEP/utility incentives) to encourage developers to participate in "above code" energy efficiency programs are undercut because the actual baseline for cost comparison is, on average, less energy efficient than minimum Energy Subcode requirements since they are often consistently enforced.

This is a systemic problem resulting from many forces, will be incredibly difficult to solve. But it is worth solving because of the potential cascading, wide-ranging positive impact. It is possible that regionalization or privatization of enforcement of the Energy Subcode, if not of all of the NJ UCC, may prove to be the best option in the long run.

3. **Streamline Green Building Standards for NJEDA Tax Credit Programs (Economic Redevelopment and Growth, Grow NJ, NJ Forward, NJ Aspire, Evergreen etc.)**

The current "Green Building Standards Guidance for Potential ERG and Grow NJ Applicants (Updated 7/13/16)" allow for various methods for compliance, including not actually earning certification but simply the "equivalency" thereof. There is also redundancy in the standards, which allow compliance based on participation in NJCEP requiring a % energy reduction but then also allow compliance by just directly documenting that energy % reduction without NJCEP participation. This puts the NJEDA in a position of directly reviewing the accuracy of energy modeling results, which are incredibly complex, instead of those results being reviewed and tracked by NJCEP. It would seem to make more sense for NJEDA to follow the NJHMFA model of simply requiring projects to participate in applicable NJCEP program as a prerequisite for tax credits.

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**RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

Dear Secretary Camacho-Welch:

The Energy Efficiency Alliance of New Jersey ("EEA") is pleased to submit these comments on behalf of its member companies to the Board of Public Utilities ("BPU") in the above reference proceeding.

Sincerely,

Eric D. Miller, Esq.
Policy Counsel
I.D. No. 161452016
Energy Efficiency Alliance of New Jersey

## I. INTRODUCTION

The Energy Efficiency Alliance of New Jersey ("EEA") is a trade association dedicated to expanding the market for energy efficiency in the Garden State. Between EEA and its sister organization, the Keystone Energy Efficiency Alliance ("KEEA"), EEA has more than 60 business members who provide energy efficiency products and services across the state, and support an industry that employs more than 30,000 New Jersey residents. Our membership is large and diverse, with experience designing and implementing a variety of demand side management solutions and efficiency programs across the globe. Simply stated, our members understand what works and what does not when it comes to successful demand side reduction programs.

EEA applauds the New Jersey Board of Public Utilities ("BPU" or "Board") for opening this docket on the energy efficiency and peak demand reduction portions of the Clean Energy Act. As the least cost energy resource, strong energy efficiency policy should form the backbone of the Garden State's efforts to transition to a clean energy economy. Not only does energy efficiency decrease GHG emissions and associated co-pollutants from the generation sector, it decreases energy costs for all ratepayers while right-sizing the grid and hardening it from severe storm events.

We hope these comments, along with the individual comments of our member companies and partners, can provide the BPU with the information required to create a framework for a thriving energy efficiency industry in New Jersey. Further, EEA is of the understanding that this opportunity to comment is just the first of many. The Clean Energy Act directs the Board to establish multiple avenues for stakeholder involvement in the design of the programs as well as the opportunity to review the proposed program guidelines before their final implementation as well as continued engagement through the Independent Advisory Committee. EEA and its member companies look forward to participating in all these venues.

## II. BACKGROUND

On May 23, 2018, Governor Murphy signed P.L. 2018, c, 17, the Clean Energy Act ("Act"), which directed both the Board and New Jersey's investor-owned electric and gas utilities to act regarding energy efficiency. Specifically, the Act states that "each electric public utility shall be required to achieve annual reductions in the use of electricity of two percent of the average annual usage in the prior three years within five years of implementation of its electric energy efficiency program."[1] Additionally, "[e]ach natural gas public utility shall be required to achieve annual reductions in the use of natural gas of 0.75 percent of the average annual usage in the prior three years within five years of implementation of its gas energy efficiency program."[2] The Act also requires that the BPU conduct and complete a study to determine the energy savings targets for full economic, cost-effective reductions, and the time frame for achieving the reductions. In conducting the potential study, the board is required to accept "comment and suggestions from interested parties."[3]

On January 22, 2019, the Board issued a Notice inviting all interested parties to attend a public hearing, held February 1, 2019, to present their views on twelve questions considered relevant by Board Staff. EEA and several of its member companies and organizational partners offered oral testimony at the February 1 hearing. Additionally, the Board invited written comments by interested parties to be submitted by Friday, February 15, 2019. EEA's comments aim to comprehensively respond to every question raised by the Board staff, as well as important additional considerations.

## III. COMMENTS

Overall, EEA is encouraged by the scope of the BPU's questions to assist it in designing an energy efficiency program that will make New Jersey a leader in energy efficiency. The plain text of the Act contains numerous factors the Board and regulated utilities are required to consider in the design and implementation of the program. EEA believes that those requirements are largely reflected in the twelve questions presented by the BPU in this docket. In answering

[1] C.48:3-87.9 3(a).
[2] *Id.*
[3] C.48:3-87.9 3(b).

each question posed by the Board, EEA relied on the expertise of its staff and national partners, as well as the experience of its various member businesses. We believe that these comments provide the information necessary to craft an innovative energy efficiency program.

**1. WHAT ARE SOME BEST PRACTICES FOR ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS FROM LEADING STATES (MASSACHUSETTS, RHODE ISLAND, CALIFORNIA, ILLINOIS, ETC.) – INCLUDING, BUT NOT LIMITED TO, ADMINISTRATIVE STRUCTURES, PERFORMANCE INCENTIVES, COST- BENEFIT ANALYSES, DECOUPLING POLICIES, AND EVALUATION – THAT NEW JERSEY CAN IMPLEMENT TO REACH ITS ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION GOALS?**

EEA is encouraged by the Board's willingness to adopt best practices from leading states on energy efficiency. While NJ does not need to reinvent the wheel, it is uniquely positioned to innovate and leverage lessons learned to create a thriving energy efficiency economy in the State. Regarding this specific question, however, EEA will limit its comments to discussion of ratemaking and rate design structures and answer questions related to administrative structures, cost-benefit analysis, and evaluation in its responses to other questions.

A strong energy efficiency resource standard should be complemented by strong ratemaking and rate design mechanisms that ensure energy efficiency and demand reduction are a core part of the utility business model and customers' interaction with their utility. While ratemaking and rate design are closely intertwined topics, they differ in important ways. Ratemaking is best defined as those incentives and factors used to determine a utilities revenue requirement in a base rate case. On the other hand, rate design are those incentives and factors used to determine an individual ratepayer's bill. Most simply, ratemaking determines utility incentives, while rate design determines customer incentives.

Regarding ratemaking, EEA proposes the Board pursue full revenue decoupling alongside Performance Incentive Mechanisms ("PIMs") that reward utilities for measurable outcomes and progress made in categories that support public policy goals, such as demand-side management, peak reduction, customer engagement, and low-income assistance, among others. Implementing these policies alongside the Act's savings targets will assist in making energy efficiency a central part of utilities' business model.

EEA recommends a well-designed full revenue decoupling measure as a key pillar of New Jersey's energy efficiency programs. Full revenue decoupling can serve to remove any disincentive that may exist for utilities to pursue demand-side reduction to its full cost-effective potential. Such a decoupling mechanism would address the throughput incentive, whereby utilities recover rising costs by increasing their volumetric sale of electricity to each customer. By decoupling volumetric electricity sales from utility revenues, utilities would no longer face revenue erosion when customers decrease electricity consumption and sales decline. Revenue decoupling varies littles from current cost-of-service ratemaking. The chief difference is that revenue decoupling includes a target revenue requirement set for each year between rate cases, and an adjustment mechanism that adjusts rates up or down to reflect differences between a utility's target revenues and actual revenues. Between 2009 and 2015 the number of electric utilities with revenue decoupling doubled from 12 to 25, with 16 states having adopted some form of revenue decoupling.[4]

Decoupling would provide numerous advantages to New Jersey utilities as it relates to energy efficiency. First, revenue decoupling would reduce the pressure on all utilities to seek increased fixed charges to cover rising costs. To the extent that a customer's bill is a fixed charge, it increases the payback period for demand-side efficiency measures and reduces customer control over bills. Therefore, keeping rates largely volumetric using revenue decoupling would keep control in the hands of customers, and stop the trend of increasing customer charges. Second, rate changes under decoupling are symmetrical and typically modest in size; in the event of over-collection, customers are refunded through a bill credit. Alternatively, if a utility under-collects, a surcharge is added to customers' bills. It is well documented that revenue decoupling does not usually result in more than a three percent change in customer's bills each period—and usually much less.[5] Further, it has been observed that nearly 40% of all revenue decoupling adjustments nationwide result in customer refunds.[6] Finally, revenue decoupling mechanisms can be

[4] Berg *et al.*, ACEEE, THE 2016 STATE ENERGY EFFICIENCY SCORECARD, at 45 (Sept. 2016), *available at:* http://aceee.org/sites/default/files/publications/researchreports/u1606.pdf
[5] Pamela Morgan, A DECADE OF DECOUPLING FOR US ENERGY UTILITIES: RATE IMPACTS, DESIGNS, AND OBSERVATIONS (Dec. 2012).
[6] *See Id.*

designed with additional consumer protections that mitigate potential rate shocks and ensure sufficient oversight of utility operations.

In addition to full revenue decoupling, EEA recommends the Board design Performance Incentive Mechanisms ("PIMs") to incent utilities to meet and exceed public policy goals, specifically increasing the deployment of energy efficiency interventions. PIMs are financial incentives that aim to reward utilities for reaching or exceeding program goals, regardless of whether they are related to efficiency. PIMs can be used for a multitude of desired policy goals, such as energy efficiency, advanced metering, peak load reduction, and reliability, among others. By rewarding utilities for performance, in addition to investment, New Jersey could better meet its public policy goals and adapt to the changes underway in the regulated utility industry.

Many jurisdictions already use the type of PIMs proposed by the EEA. In its 2016 State Score Card, American Council for an Energy-Efficient Economy ("ACEEE") found that 28 states offer a performance incentive for at least one major electric utility.[7] The type of compensation a utility receives under a PIM takes several forms. For instance, compensation could be based on shared savings, and would grant the utility a share of the estimated net benefits that result from their EE&C programs. Alternatively, the PIM could provide EDCs with a bonus at a set rate for each MWh of load savings beyond their savings target. Of the different types of PIMs, EEA supports a multi-factor incentive based on performance, and urges the BPU to explore the incentives currently in place in states like Rhode Island, Massachusetts, and New York. EEA discusses PIM design in greater detail in response to Question 11.

Ratemaking is only half of the equation. The other set of policies critical for successful energy efficiency programs is rate design. Rate design are those cost recovery structures that ratepayers are exposed to on their utility bills. There are three principles, articulated by ACEEE, that EEA supports as it relates to rate design:

[7] Berg *et al.*, ACEEE, THE 2016 STATE ENERGY EFFICIENCY SCORECARD, at 45 (Sept. 2016), *available at:* http://aceee.org/sites/default/files/publications/researchreports/u1606.pdf

- **Promoting Efficiency and Conservation:** Rates should send price signals to customers to discourage wasteful use of electricity. This principle underscores that rates should be cost-based, and send accurate price signals to customers related to the long-run marginal cost of service. In addition to price signals being accurate, they must also be actionable, meaning customers can modify their energy usage to respond the price signals they receive.

- **Rate Simplicity:** Rates should be easy for customers to understand and respond to accordingly. This principle is important to the present conversation, because customers cannot respond to a price signal unless they understand it. However, rate simplicity should not be pursued in a vacuum, and instead should work to achieve efficiency and utility revenue stability.

- **Utility Revenue Stability:** Rates should allow utilities the ability to earn Board-authorized revenues to maintain financial health.[8]

At a minimum, good rate design means avoiding disproportionate levels of fixed charges or any shift toward straight-fixed/variable ("SFV") rate design. Any portion of a customer's bill that is fixed prevents that customer from saving money by becoming more energy efficient, and increases payback periods for energy efficiency investments. For example, a recent ACEEE report examined several different rate designs with varying degrees of fixed charges ranging from $10, $25, and $50. The report found that moving from a $5 to $25 monthly customer charge produced payback periods that were 31% longer.[9] For some energy efficiency measures this can mean several years of difference between payback periods under different rate designs. Instead, fixed charges should only recover those costs directly associated with serving the customer, rather than the distribution system at large, because in the long-run the distribution system is a variable cost that can be modulated over time through planning and demand-side investments.

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[8] Brendon Baatz, *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, at v (Mar. 2017), *available at:* http://aceee.org/research-report/u1703.

[9] *Id. at 25.*

In addition to keeping fixed charges low, Time-Varying Rates ("TVR") are an unparalleled rate design to maximize the impacts of energy efficiency investments for customer's bills and the utility grid. Specifically, EEA proposes that the Board explore the broad application of a bi-seasonal Time-of-Use ("TOU") rate with a peak-time rebate ("PTR") element as an alternative to increased customer charges or demand charges for small commercial and residential customers. If well-designed, a TOU rate structure can allow customer bills to remain largely volumetric, while sending easy-to-understand price signals to customers that better reflects the true cost of their electricity consumption and costs to the grid. The benefits of TOU rates are numerous: reduction in energy peak energy consumption (both summer and winter), decreased payback period for efficiency measures, better protection of low-income ratepayers when compared to other forms of rate-design, and measured success in decreasing peak demand and incentivizing energy efficiency across several jurisdictions. These benefits contrast strongly with increased customer charges, which can "increase overall consumption and discourage investments in energy efficiency technologies."[10] TOU rates would meet the principles outlined by EEA, and coupled with the growing AMI deployment and TOU pilots, New Jersey is well-positioned to implement TOU rates using its existing authority, and with the further deployment of AMI currently proposed by some of the State's utilities.

TOU rates are a form of time-variable pricing whereby the volumetric fee for electricity varies depending on the time of day or the season. The primary purpose of TOU rates is to send customers a price signal that more accurately reflects the costs of their usage in a way that is easy to understand. TOU rates allow better customer interaction with the grid by charging a higher price for electricity during on-peak hours when costs are highest for utilities, and lower charges when cost is the lowest. Thus, TOU rates better reflect the true cost of supplying electricity to customers than existing flat rate structures. Although TOU rates are designed to reflect the true cost of electricity, the rate variations are announced ahead of time on a fixed schedule. This provides customers with more predictable prices, and does not expose them to the full risk of the real-time electricity prices.

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[10] Brendon Baatz, *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, at iv (Mar. 2017), *available at:* http://aceee.org/research-report/u1703.

TOU rates can be designed in several ways to produce energy savings, peak reduction, and allow greater customer interaction with the grid. The portion of TOU rates shown to have greatest impact on peak reduction and energy efficiency is the peak to off-peak period ("POPP") ratio. The POPP is the ratio of the price charged for peak period consumption to that charged for off-peak consumption. POPP ratios typically range from 1:1 to 7:1. Studies have found that a ratio of 2:1 result in a 5% reduction in peak, while a ratio of 5:1 result in approximately 10% reduction in peak.[11]

Another important design element of TOU rates is the length of the peak period, which correlates with on-peak hours when load reduction is most needed.[12] According to the Rocky Mountain Institute ("RMI"), TOU durations can range from 4 to 16 hours, but the best customer response comes from durations that are as short as possible while still capturing the necessary peak hours.[13] Surveys show that the best peak durations are typically no longer than 5 hours. Additionally, TOU rates typically have 3 or fewer pricing periods, including bi-seasonal price variation.[14] EEA recommends that the Board and EDC's consider a bi-seasonal program with 5- to 6-hour peak durations with at least a 5:1 POPP ratio.

In addition to a bi-seasonal TOU rate, EEA also recommends the Board and EDCs explore the additional element of a Peak-Time Rebate ("PTR"). A PTR structure awards customers with a rebate for energy saved during peak events announced ahead of time by a utility. This is a low-risk option compared to other forms of peak pricing, because there is no associated penalty with a PTR, only potential savings. According to 2015 study by the Department of Energy, the average peak demand reduction for customers in a PTR program programs was 11%.[15]
In addition to peak-load reduction, TOU rates can also have a positive impact on payback periods for efficiency measures, especially when compared to increased fixed charges or demand

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[11] Herman K. Trabish, *Rate design roundup: demand charges vs. time-based rates*, UTILITY DIVE (Jun. 2 2016), http://www.utilitydive.com/news/rate-design-demand-charges-time-based-rates/419997/.
[12] Aman Chitkara *et al.*, *A Review of Alternative Rate Designs*, at 30.
[13] Herman K. Trabish, *Rate design roundup: demand charges vs. time-based rates*, UTILITY DIVE (Jun. 2 2016), http://www.utilitydive.com/news/rate-design-demand-charges-time-based-rates/419997/.
[14] *Id.*
[15] Neil Strother, *Time-Based Rates: What Works, What Doesn't*, NAVIGANT RESEARCH (Jun. 30 2015), https://www.navigantresearch.com/tag/time-of-use-pricing (citing *Interim Report on Customer Acceptance, Retention, and Response to Time-Based Rates from the Consumer Behavior Studies*, U.S. DEP'T OF ENERGY, *available at*: https://www.smartgrid.gov/files/CBS_interim_program_impact_report_FINAL.pdf).

charges. ACEEE reviewed payback periods for fourteen energy efficiency measures or programs under twenty rate-design scenarios.[16] It found that broadly, TOU rates decrease the payback period for efficiency measures. This contrasts with customer charges, which can significantly increase payback periods for efficiency measures. For instance, the same study found that moving from a $5 to a $25 customer charge increased payback periods by 25-34%, depending on the measure.[17] Such a large increase in payback periods would have a chilling effect on the adoption of efficiency measures by ratepayers, and undermine demand-side reduction programs in the State.

Other jurisdictions have documented success with TOU rate programs. One example is the program piloted and adopted by Oklahoma Gas & Electric (OG&E). OG&E's smart meter-enabled SmartHours opt-in program offers four pricing levels for peak time periods on weekdays from 2 p.m. to 7 p.m. during the months of June through September.[18] The customers' off-peak rate is $0.05/kWh, while their peak period rates, communicated a day in advance, range from the standard $.09/kWh to a high $.18/kWh, with a critical peak of $.42/kWh.[19] A free smart thermostat enables customers to manage their household usage. The program was piloted in Norman, Okla., in 2011 and deployed across the OG&E service territory in 2012.[20] Almost 15%, or 115,000, of the utility's residential and business customers save an average of $200 per summer on the program. The SmartHours program has produced an approximate peak demand reduction of 150 MW and has enabled OG&E to delay building incremental thermal generation.[21] Because of the success of the SmartHours program, OG&E plans to continue promoting SmartHours and has also introduced a marketing campaign to increase the use of smart thermostats.

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[16] Brendon Baatz, *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (Mar. 2017), *available at:* http://aceee.org/research-report/u1703.
[17] *Id.*
[18] Herman K. Trabish, *Rate design roundup: demand charges vs. time-based rates*, UTILITY DIVE (Jun. 2 2016), http://www.utilitydive.com/news/rate-design-demand-charges-time-based-rates/419997/.
[19] *Id.*
[20] *Id.*
[21] *Id.*

Meanwhile, Baltimore Gas and Electric's (BGE) Smart Energy Rewards program provides an excellent and recent example of a PTR program. This is considered the largest dynamic pricing program in the United States, with 20% of all residential dynamic pricing customers in 2017.[22] Under this program, BGE gives customers a $1.25 bill credit in return for reducing energy usage during peak events. The program results in over 300MW of peak demand reduction each year.[23] Based on the success of these two programs, EEA recommends similar programs be rolled out in New Jersey to help reduce peak from the residential and commercial sectors, while also pursuing demand response resources.

Finally, when considering new rate designs, customer education and outreach will be critical to the success of the program. One example of a best practice around TOU customer engagement can be found in Maryland, where the Commission recently determined that outbound communications to coach customers on their new rates "can lessen any downside risk and help customers have a successful experience with time-varying rates."[24]

In sum, ratemaking and rate design are core elements of successful energy efficiency programs. Both utilities and ratepayers will respond to incentives, and those incentives must be aligned with the important public policy goals of energy efficiency and peak demand reduction. By implementing ratemaking that makes energy efficiency spending a revenue opportunity for utilities, alongside rate design that empowers customers to control how and when the consume electricity, New Jersey can create a robust efficiency market that provides benefits to all of its participants.

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[22] Coley Girouard, Behavioral demand response gives Baltimore Gas and Electric a business reason to reduce peak usage, Utility Dive (Jan. 28, 2019) *available at*, https://www.utilitydive.com/news/behavioral-demand-response-gives-baltimore-gas-and-electric-a-business-reas/546895/

[23] *Id.*

[24] Maryland Public Service Commission, #8, 12/12/2018 AM; NL# 223000, 223023, 223189, 223204, https://webapp.psc.state.md.us/newIntranet/Maillog/content.cfm?filepath=C:\Casenum\Admin%20Filings\200000-249999\223250\No.%208%20-%2012-14-18%20AM%20TOU%20Pilots.pdf

## 2. HOW SHOULD "FULL ECONOMIC, COST EFFECTIVE POTENTIAL" BE DEFINED IN TERMS OF THE ENERGY EFFICIENCY TARGETS TO BE ESTABLISHED BY THE BOARD?

At the outset, EEA would note that this question is directly tied to Question 8, as well as the Board's choice of Cost Benefit Analysis (CBA). Therefore, EEA believes these topics should be considered together, and will limit its response to this question to only a high-level response.

Section 3(b) of the Act requires that the Board:

> Shall conduct and complete a study to determine the energy savings targets for full economic, cost-effective potential for electricity usage reduction and natural gas usage reduction as well as the potential for peak demand reduction by the customers of each electric public utility and gas public utility and the timeframe for achieving the reductions. The energy savings targets for each electric public utility and gas public utility shall be reviewed every three years to determine if the targets should be adjusted. The board, in conducting the study, shall accept comments and suggestions from interested parties.

Based on the plain language of the act, the Board is required to conduct a study that determines the "full economic, cost-effective potential" for electric usage reduction, natural gas usage reduction, and peak demand reduction. This study is to serve as the basis for determining energy saving targets for the regulated utilities. The Act does not define "full economic, cost-effective potential," but Section f(1) does direct the board to establish a stakeholder process to evaluate the "economically achievable energy efficiency and peak demand reduction requirements."

Read together, it seems reasonable that the Act intends for "full economic, cost-effective potential" to determine the absolute maximum level of energy efficiency, regardless of program costs. This is similar to the potential study conducted by Pennsylvania's Statewide Evaluator ("SWE"), which defines full economic cost-effectiveness as the subset of the technical potential that is economically cost-effective as compared to conventional supply-side energy resources. Further, its definition for full-economic potential considers only the cost of the measures themselves, ignoring any programmatic costs that would actually be required. Then, the amount

of "full economic, cost-effective potential" that is "economically achievable" is determined through a stakeholder process and the input of the independent advisory committee as discussed in Section f(1) of the Act. What the final target actually is, depends on the selection of the CBA, which EEA discusses in more detail in its response to Question 8. However, the simplest definition is that energy efficiency should be compared on equal footing to traditional supply, and should be pursued over traditional supply whenever it costs less.

### 3. WHAT MARKETS SHOULD BE SERVED STATEWIDE? WHAT PROGRAMS SHOULD HAVE CONSISTENT INCENTIVES, ELIGIBILITY CRITERIA AND RULES ACROSS ALL SERVICE TERRITORIES? SHOULD THE PROGRAMS BE DELIVERED BY A SINGLE STATEWIDE IMPLEMENTER? WHAT ARE THE BARRIERS TO IMPLEMENTING A STATE-WIDE APPROACH, AND HOW CAN THEY BE OVERCOME?

While the existing statewide programs have been successful in accomplishing their goals, and provided important lessons for efficiency programs in the State, EEA strongly believes that the programs should not be delivered by a single statewide implementer. Instead, utilities should be empowered to propose and administer programs, with the oversight of the advisory committee and the Board, that best fit their service territories. This is especially important given the fact that the Act places the responsibility and threat of financial penalties squarely on the shoulder of utilities. Moreover, Section f(2) of the act is clear in requiring that each electric and gas public utility:

> Shall conduct a demographic analysis as part of the stakeholder process to determine if all its customers are able to participate fully in implementing energy efficiency measures, to ***identify market barriers that prevent such participation***, and to make recommendations for measures to overcome such barriers. (emphasis added).

Therefore, the onus should be on the utilities to administer programs, as well as conduct studies to identify and solve market barriers within their service territory. This structure is bolstered by the fact that, for the majority of energy efficiency offerings, electric and gas utilities are the single and most recognizable point of contact that ratepayers have with the energy system.

Therefore, utilities are uniquely positioned to leverage their relationship with their customers to provide energy efficiency measures and programs and utilize it to manage their grid resources.

For example, our members report that some of their most successful program offerings are those in which they present the utility brand in their marketing materials, ID badges, and even the clothing they wear. These programs are further bolstered by the wealth of customer data which is helpful in targeting and reaching mass market customers. This relationship only grows in importance when it comes to things like sharing usage data directly with customers, discussed in depth in EEA's response to Question 7, and providing innovative rate design options outlined in EEA's answer to Question 1.

Although EEA believes utilities are ultimately responsible for program administration and barrier identification, there are three rate classes known nationally to regularly face barriers to energy efficiency deployment that should be addressed at the outset the analysis process. First, EEA recommends the adoption of consistent eligibility requirements and incentive payments regarding the Low and Moderate Income ("LMI") sectors. There is significant data showing low-income ratepayers tend to live in less efficient housing and, as a result, spend a much greater share of their household incomes on utility bills than do higher income households. In New Jersey especially, low-income customers may live in older homes with inefficient cooling or heating systems. Additionally, low-income customers living in rental properties have fewer opportunities to upgrade their appliances, and may not have control of their heating or cooling. No low-income ratepayers should be prevented from availing themselves of energy efficiency incentives solely based on the service territory in which they reside. Therefore, EEA recommends setting a statewide income threshold and 100% incentive level for this segment. Additionally, EE programs designed for the low-income residential space should work closely with Weatherization Assistance Program ("WAP") administrators to ensure that utility programs and WAP programs coordinate in a manner that allows those residents to take advantage of both programs simultaneously.

Second, special consideration should be given to the multifamily housing sector. Programs should be designed to meet the needs of both building owners/landlords and their tenants. Many

states have struggled with the split-incentive problem as well as problems with program gaps. The split incentive problem refers to the fact that building owners often only avail themselves of efficiency upgrades in common areas served by a master meter paid for by the landlord or building owner, and not individual dwelling units where utility bills may be paid for by tenants. This also exposes a gap in program administration, whereby the building falls into a program administered by a C&I third party, but the tenants of that building qualify for program offerings provided by a different third party. To prevent this, utilities should pay attention to multifamily program design during the planning phase of their programs.

Third, the small business sector sometimes has trouble utilizing mass market efficiency offerings for a variety of reasons. Typically, these businesses may not own their building, may not have access to capital for investments, and may have unique energy usage characteristics that make them ill-suited to standard program offerings. Due to the significant diversity of customers in the rate class, utility programs should place significant emphasis on servicing this sector through innovative program offerings and directed marketing efforts.

Given these considerations, EEA recommends that utilities administer their own programs best suited for their service territory. However, there should be a minimum level of standards and service, especially in the LMI, multifamily, and small business sector. In this model, the role of the Board and Advisory Committee should be limited to oversight and evaluation that includes a consistent and transparent means of tracking utility progress to ensure accountability across the state. This design is consistent with the language of the Act, and best practices from other states in the region.

### 4. HOW CAN THESE PROGRAMS BE DELIVERED AT THE LOWEST COST TO RATEPAYERS, WHILE ALSO PROVIDING OPTIMAL EASE OF USE AND CUSTOMER SERVICE AND MAXIMIZING MARKET UTILIZATION?

While EEA discusses cost controls in more detail in its response to Question 5, EEA believes optimal ease of use, customer service, and maximizing market utilization are best achieved when taking a customer-centric approach to energy efficiency, which is best facilitated through performance-based program designs that allow implementers to drive successful models for

customer engagement and adapt to a quickly changing market. Delivering programs at the lowest cost to ratepayers *via* customer-centric approach involves the following principles:

- Simplicity in design and delivery of incentives to the market
- Flexibility in implementation by utilities and/or third-party implementers
- Leveraging private capital that can supplement ratepayer capital

Most importantly, it must be very easy for utility customers to participate in programs. Customer friction is typically the largest driver of costs (hard and soft) that are higher than necessary. Therefore, utility program offerings must be made clear in marketing materials, and utility outreach. Simply stated, customers will not leverage programs or rebates that they are unaware of, or seem too burdensome to undertake. For example, in recent years many utilities have had success with direct sale online market places that discount efficiency products at the point of purchase, rather than through a rebate process, greatly increasing penetration of the products on offer. Innovative solutions such as this should be pursued at every rate class and program to ensure ratepayers have easy and understandable access to energy efficiency.

### 5. WHAT IS THE BEST WAY TO MINIMIZE ADMINISTRATIVE COSTS AND AVOID DUPLICATIVE ADMINISTRATIVE STRUCTURES?

EEA believes that administrative costs will be minimized by deploying programs at scale by each utility, and ensuring programs are run continuously once they are established. Administrative costs are at their greatest during program design and ramp up. Once efficiency programs are administered, the portion of spending allocated to administration drops. The cost of program administration continues to decline as lessons are learned, and implementers fine tune their offerings. Moreover, the costs of program oversight are minimized when utilities meet reasonable reporting requirements that are evaluated by a third party. Reporting and oversight are discussed in more detail in EEA's response to Question 12

Another important consideration for containing program costs is ensuring that once programs are up and running, there is sufficient budget to ensure they are not ramped down mid-implementation cycle. This has occurred in other states, where due to budget limits, or program

targets being hit ahead of schedule, programs are ramped down. This negatively impacts programs from both the customers' and implementers' point of view. For customers, being unable to take advantage of a program discourages current and future participation in program offerings. Further, companies are forced to lay off staff or suspend operations when sitting idle waiting for a budget to be reallocated at the end of a program year or phase. Both can be mitigated by ensuring sufficient budget during the program planning process.

### 6. WHAT CONSIDERATIONS SHOULD BE MADE DURING A TRANSITION PERIOD THAT WOULD RESULT IN AS FEW DISRUPTIONS AS POSSIBLE TO THE MARKET PLACE?

To minimize potential disruptions to the existing energy efficiency programs, companies, and workforce, EEA recommends that the existing BPU programs continue uninterrupted until after utilities have contract with their third-party implementers and new programs are fully launched. This transition would be further enhanced by initiating programs on a staggered basis, whereby the BPU would begin winding down an existing program when a complimentary utility program is initiated. If the BPU were to end programs before utility programs are available, there would be confusion among customers who no longer have access to incentives, while EEA members would experience significant job losses. Every time a program needs to be re-launched, administrative costs are increased at direct cost to ratepayers. Therefore, a customer-centric approach to the transition period is important to ensure a smooth transition between existing and new programs.

### 7. WHAT IS THE BEST WAY TO MAXIMIZE THE USE OF CONSUMER DATA HELD BY THE UTILITIES, AND WHAT PROCEDURES ARE RECOMMENDED FOR SHARING THAT DATA?

Customer data collection, sharing, and analysis can provide significant benefits to both ratepayers and utilities. Although New Jersey does not yet have AMI, sharing monthly data is still important to the development of the efficiency market. Furthermore, the state should prepare for its deployment to head off any potential time lag between AMI deployment and ratepayers capturing the concrete benefits of such collections. Several states have already carefully considered the data privacy and electronic access to data held by utilities. These states

include California, Illinois, New York, and Texas.[25] To this end, EEA recommends the Board examine the 10-point framework provided by Mission:data Coalition in its comments on this docket. The 10 elements are:

1. Definition of Energy Data: The definition should include customer data (name, address, phone number, etc.), billing data, usage data, and system data necessary for demand response data.

2. Format and Transmission Protocol: The BPU should find a nationally-recognized, open standard, that adhere to industry best-practices to transfer standard customer data to authorized third parties. One example of such a transmission protocol is Green Button Connect ("GBC").

3. Third Party Eligibility Criteria: There should be a standard set of eligibility requirements for third parties to electronically receive customer data from utilities.

4. Binding Terms of Use: Third parties should be required to agree to binding terms of use when registering with a utility to receive customer data that includes a privacy policy, prohibited uses, as well as a waiver of liability.

5. Clear Authorization Language: Standardized information that is clear and simple to understand should be provide to the customer prior to consenting to have their data shared.

6. Streamlined Customer Experience and Ease-of-Use: Require utilities to adhere to best practices in online authorizations to streamline the customer experience.

7. Provide Certain Platform Features for Third Parties: This includes testing and production environment as well as the ability for customers to authorize two entities at once.

[25] Murray *et. al.*, ENERGY DATA: UNLOCKING INNOVATION WITH SMART Policy, Mission:Data, at 3. (Dec. 2017).

8. Revocation Process: The Revocation process should describe how, and under what circumstances, a customer may revoke a third party's authorization.

9. Enforcement Process Against Bad Actors: The Board should define its enforcement processes against bad actors to clarify the roles and responsibilities of utilities and third parties.

10. Quality of Service: Transparency: utilities should have a quality of service metric so that they are held to a high standard in the provision of their information and technology systems, such as uptime.

EEA emphasizes that customer authorization of energy usage data to third parties should be validated based on information that the customer is likely to know. Most customers do not know their utility account number or credentials off the top of their head. The BPU should place an emphasis on energy data disclosure rules that take this into account and reduce the barriers for customers to share their energy usage data.

**8. WHAT DATA, ASSUMPTIONS, METHODOLOGY, AND CONSIDERATIONS (E.G., NON-ENERGY BENEFITS) SHOULD BE USED TO PERFORM COST-BENEFIT ANALYSES?**

There are two main factors the board should consider in its CBA; what CBA to use, and what inputs and assumptions should be used in the CBA. Based on the plain language of the Act, EEA believes the Board must employ a Societal Cost Test ("SCT") or similar test that values the environmental impacts of energy efficiency investments. Specifically, Section d(2) of the act states "the energy efficiency programs and peak demand reduction programs ***shall*** have a benefit-to-cost ratio of greater than or equal to 1.0 at the portfolio level, considering both economic ***and environmental factors . . .***" (emphasis added). Based on the language of the Act, the CBA chosen by the board must include environmental factors.

Relating to inputs, EEA recommends the Board examine the National Standard Practice Manual ("NSPM"). Released in 2017 by E4TheFuture and the National Efficiency Screening Project,

the NSPM is a detailed manual designed to guide regulators on how to develop their own jurisdictional cost-effectiveness tests of utility customer-funded energy efficiency programs. The NSPM relies on six guiding principles:

1. Recognize that energy efficiency is a resource;
2. account for applicable policy goals;
3. account for all relevant costs and benefits, even if hard to quantify the impacts;
4. ensure symmetry across all relevant costs and benefits;
5. conduct a forward-looking, long-term analysis that captures incremental impacts of energy efficiency; and,
6. ensure transparency in presenting the analysis and the results.[26]

While the NSPM lays out a detailed process and designing a cost-effectiveness test, its categorization of utility and non-utility impacts, and participant impacts provide a useful illustration of impacts to consider:

| Illustrative Utility System Costs | Illustrative Utility System Benefits |
|---|---|
| • EE Measure Costs (utility portion – e.g. rebates) | • Avoided Energy Costs |
| • EE Program Technical Support | • Avoided Generating Capacity Costs |
| • EE Program Marketing/Outreach | • Avoided T&D Upgrade Costs |
| • EE Program Administration | • Avoided T&D Line Losses |
| • EE Program EM&V | • Avoided Ancillary Services |
| • Utility Shareholder Performance Incentives | • Wholesale Price Suppression Effects |
| | • Avoided Costs of RPS Compliance |
| | • Avoided Costs of Environmental Compliance |
| | • Avoided Credit and Collection Costs |
| | • Reduced Risk |
| | • Increased Reliability |

[27]

In addition to utility system benefits, there are several Non-Energy Benefit ("NEBs") or Non-utility benefits that should be quantified and included in the cost-benefit test. These benefits can

[26] NSPM Standard Overview, NESP (May 2018) *available at* https://nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM-Standard-Overview-May-2018.pdf
[27] *Id.*

include participant costs, impacts on low-income customers, other fuel impacts, water impacts, environmental impacts, public health impacts, economic development, and energy security, among others. The NSPM provides significant detail on how to treat each category of impact and cost, as well as the sub-categories that comprise them.

Massachusetts employees a CBA test that includes all program administrator costs and program participant costs. Administrator costs include program implementation expenses, evaluation costs, proposed performance incentives, and tax liability for performance incentives. Additionally, participants costs include the initial costs incurred by customers because of their participation in the program. [28]

On the benefits side of the its test, Massachusetts includes the value of avoided costs and non-energy impacts ("NEIs"), or non-resource benefits, resulting from the program over the lifetime of the measures. Massachusetts resource benefits include avoided energy valued at different times, avoided capacity valued at peaking periods, avoided transmission, avoided distribution, and effects on market prices. Additionally, NEIs are the values associated with EE programs apart from energy savings, such as reduced costs for operation and maintenance, longer equipment replacement cycles, and productivity improvements, reductions in costs associated with reduced customer arrearages, service terminations, and reconnections, and other measurable benefits due to the installation of the energy efficiency.[29]

Recently, PSE&G proposed a SCT that mirrors Massachusetts CBA inputs. In its filing PSE&G outlines its assumptions for five forms of CBAs required by the Board Minimum Filing Requirements (Participant Cost Test, Program Administrator Cost Test, Ratepayer Impact Measure Test, Total Resource Cost Test, and Societal Cost Test. For each of the 5 CBA tests, PSE&G used the following assumptions:

- Lifetime Avoided Electric Supply Costs

[28] Mass Save, Massachusetts Joint State Electric and Gas Three-Year Energy Efficiency Plan 2019-2021, at 117 (Apr. 30, 2018) *available at*, http://ma-eeac.org/wordpress/wp-content/uploads/2019-2021-Three-Year-Energy-Efficiency-Plan-April-2018.pdf
[29] *Id.*

- Lifetime Avoided Electric Capacity Costs
- Lifetime Avoided Natural Gas Supply Costs
- Lifetime Demand Reduction Induced Price Effects
- Lifetime REC Avoided Purchases
- Lifetime Wholesale Volatility Value
- Lifetime Avoided Replacement
- Lifetime Avoided T&D Costs
- Lifetime Environmental Benefits
- Economic Benefits
- Discount Rate

Based on the foregoing, EEA believes the SCT and assumptions included by PSE&G in its EE-CEF should be the starting point for a conversation around how to best include environmental impacts and other NEBs in the CBA. Further Section f of the Act requires a stakeholder process to evaluate the CBA and its input. EEA recommends the utilization of the NSPM to guide that process. Such a process would be consistent with the Act, and leverage best-practices already in place by other states.

**9. WHAT SHOULD THE MEMBERSHIP OF THE INDEPENDENT ADVISORY COMMITTEE BE? WHAT IS THE PROPER ROLE OF THE INDEPENDENT ADVISORY COMMITTEE? WHAT EXISTING MODELS OR BEST PRACTICES SHOULD THE BOARD CONSIDER IN ESTABLISHING THE INDEPENDENT ADVISORY COMMITTEE?**

EEA believes that the establishment of an Independent Advisory Committee ("Committee") is critical for successful energy efficiency programs. Section f of the Act states:

> As part of the stakeholder process, the board shall establish an independent advisory group to study the evaluation, measurement, and verification process for energy efficiency and peak demand reduction programs, which shall include representatives from the public utilities, the Division of Rate Counsel, and environmental and consumer organizations, to provide recommendations to the board for improvements to the programs.

EEA believes this language establishes the minimum scope and make-up of the Committee, and recommends that the Board expand the scope and membership of the Committee in three key ways. First, in addition to the Committee's directive to study the EM&V portions of the process, the Committee should be involved in the design and oversight of energy efficiency plan filings. This is best accomplished if the Committee has the resources to hire a third-party intervenor as well as independent consultants to evaluate utility proposals and metrics. The Act is clear in expectation the Board will open multiple avenues of stakeholder input, and the Committee is perhaps the most important moving forward.

Second, as with all of the other topic areas described in these comments, the Committee process should be transparent. Decisions that affect millions of NJ ratepayers and businesses should not be decided in a black box. Instead, Committee minutes, reports, and decisions should be non-confidential, with certain meetings open to the public.

Third, EEA believes that it and other stakeholders be included in the Committee. EEA's constituents are the businesses who will ultimately be responsible for the successful implementation of energy efficiency programs, and already run many existing programs in the state. Coupled with the expertise of EEA staff and member businesses, it is well positioned to substantively add to the Committee in a positive and productive fashion.

EEA believes there are two existing Committees the Board should look too for guidance. First, is the Massachusetts Energy Efficiency Advisory Council (EEAC) created by the Green Communities Act. The EEAC guides the development of energy efficiency plans by the State's utilities, and monitors the implementation of the plans. That committee has 15 voting organizations and 11 non-voting organizations. One important note is that individual utilities on that Committee are not able to vote.

A second example is the Connecticut Energy Efficiency Board ("EEB"), a group of advisor who "utilize their experience and expertise with energy issues to evaluate, advise, and assist the state's utility companies in developing and implementing comprehensive, cost-effective energy conservation and market transformation plans to help Connecticut consumer reduce energy use

in the homes and business and to help Connecticut meet its changing and growing energy needs."[30] The Connecticut EEB consists of an appointed group of 15 members that consists of state, business, and NGO organizations.

A Committee similar in structure to either Connecticut or Massachusetts would greatly assist New Jersey in its design and implementation of energy efficiency programs. Moreover, a well-design committee would increase regulatory efficiency by avoiding time-consuming and costly regulatory proceedings for every efficiency plan filing and plan change.

**10. HOW SHOULD SAVINGS FROM THE CLEAN ENERGY PROGRAM, EXISTING UTILITY PROGRAMS, BUILDING CODE MEASURES, APPLIANCE EFFICIENCY STANDARDS, OTHER STATE SPONSORED EE OR PEAK REDUCTION PROGRAMS, ETC., THAT MAY CONTRIBUTE TO MEETING SAVINGS TARGETS BE FACTORED INTO A UTILITY'S SAVINGS TARGETS, QPIS, AND PERFORMANCE INCENTIVES?**

EEA believes that the Act is clear in its treatment of existing and non-utility programs as it relates to establishing QPIs, and savings targets, as well as utility achievement of savings targets. However, EEA does not believe the Act is clear in how it treats the payment of performance incentives for utility savings targets achieved or exceeded using non-utility programs.

The Act is clear in requiring non-utility efficiency measures and programs to be considered in the establishment of QPI's as well as utility achievement of their targets. Section 3 of the Act requires that the Board adopt QPIs that consider a multitude of factors ranging from non-utility programs, code standards, weather, economic factors, growth of electric vehicles, and microgrids among many other factors. Further, Section 3 goes on to state that a public utility may apply all energy savings attributable to programs available to its customers, including non-utility programs, to achieve the targets in this section. Thus, even if a program is not run by a utility, or financial supported by ratepayer funds, a utility may count those savings so long as they accrue to a ratepayer in its service territory. EEA views this as a helpful transition measure when it comes to saving target achievement, but believes it does not comport with good principles of PIM design discussed in greater detail in Questions 1 and 11.

[30] About Page, https://www.energizect.com/connecticut-energy-efficiency-board

Simply stated, utilities should not earn performance incentives, or penalties, based on programs the utility does not directly administer or contribute funding towards. Section e(2) of the act states:

> If an electric public utility or gas public utility achieves the performance targets established in the quantitative performance indicators, the public utility shall receive an incentive as determined by the board through an accounting mechanism established pursuant to section 13 of P.L.2007, c.340 (C.48:3-98.1) for its energy efficiency measures and peak demand reduction measures for the following year. The incentive shall scale in a linear fashion to a maximum established by the board that reflects the extra value of achieving greater savings.

EEA strongly supports this language, but believes it, as well as Section e(3)(related to penalties) should be limited to those savings targets that are achieved through utility programs, or non-utility programs that a utility had a direct role in funding. Just as shareholder dollars should not be allocated to penalties for non-performance in meeting targets outside of a utilities control, ratepayer dollars should not be spent on incentives for performance in meeting targets outside of a utilities control.

### 11. HOW SHOULD PERFORMANCE INCENTIVES AND PENALTIES BE IMPLEMENTED? WHAT LEVEL OF INFORMATION WILL BE NEEDED? HOW SHOULD THEY BE COLLECTED/PAID, WITH WHAT FREQUENCY AND WHEN SHOULD THEY BEGIN IMPLEMENTATION?

As discussed in its response to Question 1, EEA believes that robust PIMs are necessary to ensure that utilities meet and exceed their energy savings targets, as well as other goals that may be established by the Board. In fact, ACEEE found that "PIMs are among the most important factors contributing to higher savings and increasing utility energy savings year to year."[31] Of the numerous PIM designs that exist, EEA recommends that the Board establish multifactor PIMs that reward utilities for *performance* in achieving or exceeding goals set by the BPU, rather than utility spending alone. Such PIMs are employed by several leading states, and comply with the plain language requirements of the Act.

[31] ACEEE, Snapshot of Energy efficiency Performance Incentives for Electric Utilities, at 1 (Dec. 2018) *available at*, https://aceee.org/sites/default/files/pims-121118.pdf

EEA recommends that PIM design be guided by a few first order principles. For example, the most recent Mass Save plan provided detailed guidance for PIM design. That plan states that performance incentives must:

- be designed to encourage Program Administrators to pursue all available cost-effective energy efficiency;
- be designed to encourage energy efficiency programs that will best achieve the Commonwealth's energy goals;
- be based on clearly defined goals and activities that can be sufficiently monitored, quantified, and verified after the fact;
- be available only for activities in which the Program Administrator plays a distinct and clear role in bringing about the desired outcome;
- be as consistent as possible across all electric and gas Program Administrators; and
- avoid any perverse incentives.[32]

Along with these guiding principles, there are roughly four categories of PIMs identified by ACEEE that the Board should explore:

- *Shared net benefits incentives*, where utilities can earn a percentage of benefits from their successful programs
- *Energy-savings-based incentives*, where utilities can earn a reward for meeting pre-established energy savings goals

[32] Mass Save, Massachusetts Joint State Electric and Gas Three-Year Energy Efficiency Plan 2019-2021, at 158 (Apr. 30, 2018) *available at*, http://ma-eeac.org/wordpress/wp-content/uploads/2019-2021-Three-Year-Energy-Efficiency-Plan-April-2018.pdf

- *Multifactor incentives*, where utilities can earn rewards for meeting pre-established goals based on multiple metrics such as energy savings, demand savings, or energy savings for low-income communities.

- *Rate-of-return incentives*, where utilities can earn a rate of return on efficiency spending, comparable to what they receive for traditional investments, sometimes with requirements for energy savings performance.[33]

Currently, 29 states use some form of PIM with 12 states implementing a share of net benefits, 3 states use savings-based models, 9 states and D.C. use multifactor, and 4 states use a return on equity models.[34] Importantly, ACEEE also found that "[9] of the top 10 states ranked by electric energy savings as a percentage of retail sales have [PIMs] in place.[35] Of those four models, EEA believes multi-factor PIM's are best suited to achieve high energy savings in Pennsylvania, and are the most consistent with the text of the Clean Energy Act.

All leading states, such as Massachusetts, Rhode Island, California, and New York, use multi-factor PIMs. For example, in 2017 leading states Massachusetts and Rhode Island achieved electric savings of 2.57% and 3.08% respectively. In those two states, PIMs work by making an incentive pool that is approximately 5% of electric spending.

For example, in Massachusetts 2016-18 plan, a three-year statewide performance incentive pool was set at a level of $100 million for electric utilities, and then allocated among program administrators. The mechanism rewarded performance on two components: savings based on the dollar value of energy saving benefits, and the dollar value of net benefits. That program set a minimum performance threshold of 75% with a maximum incentive awarded at 125% of each target. Recently the Massachusetts Energy Efficiency Advisory Council approved the 2019-

[33] ACEEE, Snapshot of Energy efficiency Performance Incentives for Electric Utilities, at 2 (Dec. 2018)
[34] *Id* at 3.
[35] *Id* at 3, *citing Dan Cross et al*, Navigating Utility Business Model Reform: A Practical Guide to Regulatory Design (RMI 2018).

2021 plan that adds new components to the incentive mechanism. These include [36] incentives to encourage program administrators to pursue active demand benefits, and incentives for service to renters. The active demand includes direct load control, demand response, behind the meter storage, and thermal storage.

Most importantly, ACEEE found that the states robust performance incentives:

> Have resulted in a cultural shift at Massachusetts utilities, making focus on energy efficiency a core part of the business. According to precious ACEEE research findings, 'the incentive structure in place has resulted in energy efficiency programs being viewed as a core business unit capable of contributing to the overall business objective of [National Grid],' and that senior executives were enthusiastic about energy efficiency.[37]

In comparison to the Massachusetts model, the New York Public Service Commission's Reforming the Energy Vision (REV) proceeding uses Earnings Adjustment Mechanisms (EAMs) that are "not more than 100 basis points [of allowed return on equity] total from all new incentives, alongside a regulatory asset construct."[38] For example, in 2017 Consolidated Edison Company of New York (Con Ed) included a mix of EAMs in its rate plans to incentivize achievements in energy efficiency, system peak reduction, and broad programs to encourage distributed energy resource integration, energy intensity across different service classes, and GHG emission reductions.

In Con Ed's case, incentive payment amounts are tied to performance in meeting the EAM metrics. Moreover, Con Ed's EE investments are treated as regulatory assets with a 10-year amortization period.

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[36] *Id.*
[37] *Id.*, at 5.
[38] *Id.*, at 7.

While Massachusetts and New York's programs are both multifactor programs based on performance, they differ in that New York's program allows for a return on equity for demand side investments in a manner similar to traditional investments. The purpose of such treatment is to make the value proposition of demand-side investments more similar to infrastructure investments. However, New York's programs still leverage a performance element for the EAMs.

In contrast to New York and Massachusetts, New Jersey does not have experience with a PIM that rewards financial incentives for performance. Recently PSE&G filed its Energy Efficiency Clean Energy Filing ("EE-CEF") which includes 22 programs over a 6-year period at a cost of $2.5 billion over the 6 years. PSE&G has proposed that it earn return on its net investment based on an authorized ROE and capital structure. Importantly, the mechanism proposed by PSEG is not tied to performance on energy savings or other targets.

While ACEEE has observed that ROE incentives without performance metrics "can reduce pressure on energy efficiency program evaluation, measurement, and verification, and this model aligns with traditional utility incentives for other program. . . ,"[39] EEA does not believe the Clean Energy Act permits the type of ROE incentive proposed by PSE&G absent a performance element.

While the Act states that adjustments may be made through adjustment to return on equity related to energy efficiency or peak demand reflecting the incentive structure as established under the Act. Section (e)(2) provides that such incentive shall be rewarded for achieving "the performance targets established in the quantitative performance indicators. . . ." Section C of the Act outlines the process for determining quantitative performance indicators:

> In establishing quantitative performance indicators, the board shall use a methodology that incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties determined pursuant to subsection e. of

[39] *Id.* at 12.

> this section and section 13 of P.L.2007, c.340 (C.48:3-98.1) are **based upon performance**, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources. (*emphasis added*)

Given that the Act requires achievement of quantitative performance indicators as a prerequisite for receiving incentive payment under the act, it does not appear that a non-performance-based ROE measure is sufficient. Therefore, EEA recommends that the Board adopt performance incentives closely modeled on the Massachusetts and Rhode Island Model. If the regulated utilities in the State feel this is insufficient, EEA recommends the Board adopt a mixed model that allows a portion of incentives to be paid on a ROE model tied to multifactor performance paid through an incentive pool.

**12. UNDER N.J.S.A. 48:3-88(3)(E), EACH ELECTRIC AND GAS PUBLIC UTILITY MUST FILE AN ANNUAL PETITION WITH THE BOARD TO DEMONSTRATE COMPLIANCE WITH ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS, COMPLIANCE WITH TARGETS ESTABLISHED PURSUANT TO THE QUANTITATIVE PERFORMANCE INDICATORS, AND FOR COST RECOVERY OF THE PROGRAMS. WHAT INFORMATION SHOULD THESE ANNUAL PETITIONS INCLUDE?**

EEA believes that the key goal of reporting under the Act should be to provide understandable, transparent, accurate, and easily accessible information for each utility's energy efficiency programs and progress towards meeting targets set by the Board. Frequent and transparent reporting allows the public and interested stakeholders to receive current information regarding energy efficiency investments. EEA believes both the content of the reports, as well as the database for the reports are critical to running successful energy efficiency programs in the state.

For reporting frequency, EEA recommends that at a minimum, utilities report progress through a semi-annual report, annual report, and to the extent programs run in 3-5 years phases, final Phase reports. This will allow the Board and the Advisory Committee, as well as members of the public, to review utility progress towards meeting annual goals, whether those annual goals were achieved, and a clear picture of savings achieved over the life of a Phase.

As for content of the reports, the annual reports should provide all information necessary to determine whether utility targets were met, whether its portfolio of programs was cost effective, and whether that utility qualifies for cost recovery and performance incentives. This information should include projected vs. actual spending, savings, and CBA information. EEA further recommends that the Board aggregate this information into a single annual report that reviews the effectiveness of the programs statewide.

In addition to the content of the reports, EEA believes that the Board must create an up-to-date and easily accessible online database that includes individual utility reports as well as Board aggregated reports. Moreover, the online portal should provide access to all regulatory documents associated with the energy efficiency program, including but not limited to:

- Board implementation orders
- Secretarial letters
- Baseline and potential studies
- Cost effectiveness tests
- Interim utility reports
- Technical Reference Manual or similar documents.
- Proposed and Final Utility Plans
- Plan Change information
- Advisory Council Reports and Minutes

In addition to this information, the Board should follow the example set by other states and create an easy to access, and easy to search electronic docket and e-filing system. For example, the Pennsylvania Public Utility Commission ("PUC") allows for direct e-filing on any docket *via* an e-filing account. After filing, any member of the public can access every document filed by any party using a consolidated docket view. This allows stakeholders to better interact with other parties involved in utility filings, and ultimately leads to a more transparent process. Such a system is critical to the success of New Jersey's programs, especially given the significant amount of documentation, and reports that will be required as programs are established and monitored.

## IV. CONCLUSION

EEA thanks the Board for this opportunity to comment on this important topic. By implementing the recommendation provided in these comments, EEA believes that the Board, utilities, and stakeholders can create programs that will make the State a leader in energy efficiency. EEA looks forward for continued opportunities for stakeholder input as the State design and implements the Clean Energy Act.

**Final RECO Energy Efficiency and Peak Demand Reduction Comments**

1. **What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.)- including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

Regarding best practices from other jurisdictions, RECO would note that the New York Public Service Commission ("NYPSC") has authorized revenue decoupling for New York State's electric and gas utilities, including RECO's corporate parent, Orange and Rockland Utilities, Inc. ("O&R"). Indeed,in its April 20, 2007 Order (pp. 1-2),[1] the NYPSC required the utilities to file revenue decoupling proposals. In doing so, the NYPSC noted the various benefits from energy efficiency:

> Programs that promote cost-effective energy conservation, increase the use of renewable resources and otherwise reduce or eliminate barriers to the installation of distributed generation can reduce pollution, conserve natural resources, decrease dependence on foreign sources of fossil-fuels, promote price stability, improve fuel diversity, and create significant cost savings opportunities for customers. Energy efficiency improvements, in particular, limit unnecessary load growth and can avoid or delay installation of costly, new distribution, transmission or generation facilities.

The NYPSC then noted the barriers to achieving cost-effective energy conservation:

> While significant progress has been made by the utilities in shifting recoveries of utility fixed delivery costs from volumetric rates or marginal consumption blocks to fixed charges or initial consumption blocks, concerns remain that, for at least some classes of customers, existing rate designs still may discourage utilities from actively promoting energy efficiency, renewable technologies and distributed generation. **To the degree that utility fixed delivery costs are recovered from customers on a volumetric or marginal consumption basis, there remains a net lost revenue and profit effect that could act as a disincentive.** In furtherance of the State's energy policy objectives, there is a need to identify the degree to which this may be the case at each of the utilities and to identify appropriate remedies. (emphasis added)

[1] See, (http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B52C027C8-9BB6-41F3-B7A7-C858002CA080%7D).

One of the remedies identified by the NYPSC was for New York State utilities to file revenue decoupling proposals. Specifically, at page 15 of the Order, the NYPSC concluded:

> The public benefits resulting from energy efficiency programs, renewable technologies and distributed generation could be substantial. Nevertheless, a link continues to exist between utility sales and delivery service revenues, due to the current design of utility delivery rates, which could influence utility behavior by providing disincentives that impede their promotion of these initiatives. Rate design changes can significantly reduce such utility disincentives, but are often effectuated gradually due to customer bill impact concerns. While the eventual implementation of more cost-based rate designs remains an important long-term objective, especially for larger more price responsive customers, it appears that properly designed revenue decoupling mechanisms are needed at this time to address disincentives that may still exist, given present delivery service rate designs.
>
> Therefore, we are directing the major electric and gas utilities to file proposals, in ongoing and new rate cases, for true-up based revenue decoupling mechanisms, in the manner contemplated in the body of this Order.

The Company would also note that another best practice is to treat energy efficiency investments as regulatory assets and amortize the costs. This treatment of energy efficiency investments benefits customers by smoothing out the bill impacts and reducing bill shock for customers as energy efficiency investments increase, as they will in New Jersey to meet the Clean Energy Act's Goals. The NYPSC, in its recent energy efficiency order, stated that utilities could propose such treatment in individual rate plans, noting that the "amortization of energy efficiency program costs may be permitted where the overall context of the rate plan establishes a benefit to doing so, such as moderation of overall customer bill impacts." (In the Matter of a Comprehensive Energy Efficiency Initiative, Case 18-M-0084, at 67 (2018)).

**2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?**

The term "full economic cost-effective potential" encompasses everything that is cost-effective, assuming limited or no market barriers. In the real world, however, market barriers exist for a variety of reasons. Therefore, the energy efficiency targets to be established by the Board should be based on "achievable market potential."

In terms of benefit cost analysis ("BCA"), O&R, RECO's corporate parent, as directed by the NYPSC, relies on the Societal Cost Test, which accounts for environmental externality benefits, to inform the procurement of energy efficiency programs. New York utilities also routinely provide the results of the Rate Impact Measure Test ("RIM"), and the Utility Cost Test ("UCT") for informational purposes. RECO recommends that the Board adopt the Societal Cost Test for the energy efficiency targets it establishes.

**3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome**?

Energy efficiency ("EE"), peak demand reduction, and demand response ("DR") programs have proven to be least cost solutions to defer utility capital investments in constrained areas in need of infrastructure upgrades on the transmission and distribution system. New Jersey electric and gas utilities should have the flexibility to implement programs based on program experience in other jurisdictions and the unique characteristics of their service territories. Synergy savings can be realized by offering similar programs where similar customer demographics exist.

Since 2009, O&R, RECO's corporate parent, has implemented successful EE and DR programs in its New York service territory. O&R's EE programs are currently achieving energy reductions that exceed 0.5% of sales. O&R's DR programs are reducing peak demand by 1.9%. RECO should be permitted to implement these successful energy EE and DR programs as it deems appropriate in New Jersey, including their associated program details and metrics.

In many states, recovery mechanisms exist that allow utilities to recover lost revenues resulting from EE programs in order to remove the disincentive to implementing EE programs. For example, as noted in the response to Question 1 above, revenue decoupling mechanisms have been successfully implemented in New York State. New Jersey utilities should also be able to recover costs associated with program offerings and lost revenues.

While overarching policy goals should be established on a statewide basis, the Board should afford individual utilities some flexibility in developing the strategies necessary to meet such goals. Utilities know their customer usage profiles and the unique characteristics of their service territories and how EE can benefit their customers and their system. The private sector should assist utilities in the development of unique solutions to meet customers' needs in support of utility efforts to engage customers and reduce energy consumption and peak demand.

National organizations like the American Council for an Energy Efficient Economy ("ACEEE"), the Association of Energy Services Professionals ("AESP"), and the Peak Load Management Association ("PLMA"), are valuable resources to assist utilities in identifying best practices for EE and DR programs. The Company is a member of both AESP and PLMA and attends conferences to identify best practices and industry innovations in EE and DR program design and implementation. These forums also provide for networking among industry professionals who are implementing successful cost-effective programs across the county and provide opportunities to enhance program offerings using the latest industry practices.

**4. How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?**

As noted in the Company's response to Question 3, RECO's parent, O&R, successfully operates EE and DR programs in its New York service territory. Allowing RECO to implement similar programs in its New Jersey service territory would avoid the cost and delay inherent in developing and implementing new programs. Other New Jersey utilities with out of state affiliates also should be allowed to implement New Jersey programs that have enjoyed out of state success.

Utility run EE, peak demand reduction, and DR programs can assist in keeping energy affordable for all customer classes through lower implementation costs. For example, RECO's low-income direct install program operates at a lower $/MWh than the State-run Comfort Partners program. This program has treated over 80% of RECO's Universal Service Fund customers. This high participation rate is a direct result of the unique relationship that RECO has with customers as their trusted energy delivery provider and its ability to engage such customers.

Through customer-funded programs, the unique relationship between the utility and its customers will allow utility programs to reach customers in a cost-effective manner.

**5. What is the best way to minimize administrative costs and avoid duplicative administrative structures?**

Please see the response to Question 4 above. In addition, some types of programs, such as behavioral programs that offer customized, personalized customer approaches, are integrated with individual utility billing systems. If RECO implements a behavioral program in New Jersey, similar to the behavioral program offered to O&R's customers in New York, RECO could replicate best practices learned through the O&R program, as well as use the same back office support and systems to minimize administrative costs.

**6. What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?**

In order to avoid disruption, new programs should be implemented gradually over a multi-year period.

**7. What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommend for sharing that data?**

Making customer data available to both customers and third-parties is important to increasing the participation in EE programs. In general, customer consent is required prior to release of customer specific data to third parties. Providing customers with more granular and timely usage and cost data improves energy literacy and empowers customers to make better energy choices.

Green Button functionality can streamline the availability of data to both customers and third-parties. RECO, along with O&R, has implemented both Green Button Download and Green Button Connect. Green Button Download gives customers the ability to obtain and analyze up to 13 months of energy use data in a simple spreadsheet. This data can be used by the customer for a variety of purposes, such as measuring EE impacts and analyzing and reviewing solutions to manage their energy use cost-effectively. This data can be shared by the customer with third-party providers. Green Button Connect, branded as Share My Data by the Company, leverages the more granular data available from advanced metering infrastructure ("AMI") by allowing customers to authorize registered third-parties to access the customer's energy data through an automated process in machine-readable format. Datasets currently available include meter number, energy or net energy usage data (kWh, net kWh), and reactive power (kVAR). Third-parties are able to request up to 24 months of 15-minute interval data for residential customers with AMI meters and five-minute interval data for commercial customers with AMI meters. Customers without AMI meters are able to share monthly data.

New York utility companies, such as O&R, share customer data with third-parties through non-disclosure agreements, data sharing agreements and customer consent. For New York State's income eligible EE program, customer consent is required for the utility to share the customer's information and usage history with third-parties. It is important to note that protection of customer data by third-parties receiving this data, as well as the cybersecurity requirements necessary to protect shared customer data, is critical. Third-parties that use or access utility systems to obtain data must enter into data security agreements (that include cybersecurity insurance requirements), as well as certify that the third-party is able to interface securely with the utility's systems and maintain the confidentiality of shared customer data.

**8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?**

Please see the response to Question 2 above. Considerations should include avoided CO2, SO2, and NOx.

**9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?**

The Clean Energy Act provides that the utilities will participate as members of the Independent Advisory Committee. This means that each utility is entitled to representation on the Committee. RECO looks forward to participating.

**10. How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?**

Section 3c of the Clean Energy Act provides as follows:

> No later than one year after the date of enactment of P.L. , c. (C. ) (pending before the Legislature as this bill), the board shall adopt quantitative performance indicators pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.) for each electric public utility and gas public utility, which shall establish reasonably achievable targets for energy usage reductions and peak demand reductions and take into account the public utility's energy efficiency measures and other non-utility energy efficiency measures including measures to support the development and implementation of building code changes, appliance efficiency standards, the Clean Energy program, any other State-sponsored energy efficiency or peak reduction programs, and public utility energy efficiency programs that exist on the date of enactment of P.L. , c. (C. ) (pending before the Legislature as this bill). In establishing quantitative performance indicators, the board shall use a methodology that incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties determined pursuant to subsection e. of this section and section 13 of P.L.2007, c.340 (C.48:3-98.1) are based upon performance, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources. In establishing quantitative performance indicators, the board shall also consider each public utility's customer class mix and potential for adoption by each of those customer classes of energy efficiency programs offered by the public utility or that are otherwise available. The board shall review each quantitative performance indicator every three years. **A public utility may apply all energy savings attributable to programs available to its customers, including demand side management programs, other measures implemented by the public utility, non-utility programs, including those available under energy efficiency programs in existence on the date of enactment of P.L. c. (C. ) (pending before the Legislature as this bill), building codes, and other efficiency standards in effect, to achieve the targets established in this section.** (emphasis added)

The highlighted language plainly indicates that the Clean Energy Act expects that the savings from the "Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets" will be factored into a utility's savings targets, QPIs, and performance incentives. This makes sense given that the Clean Energy Act's overriding purpose is to encourage and facilitate the achievement of energy efficiency and peak demand reduction

on a statewide basis. Utilities should not be penalized, for example, to the extent that they direct their customers to participate in EE and peak demand reduction programs offered by third-parties.

**11. How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?**

At a minimum, any incentives and penalties should be phased in over a multi-year period that includes a ramp-up and transition period with the appropriate flexibility to allow the utility to achieve longer term goals over the multi-year period as well as flexibility to implement on a portfolio basis rather than individual specific program targets. Any collection/payment should be performed on an annual basis, and through a surcharge (rather than base rates), which would be updated to reflect any over- or under-collection, avoiding the need to accumulate large deferred balances.

**12. Under N.J.S.A.48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?**

Annual petitions should include, at a minimum, MWh and MW savings achieved, budgets and expenditures by task category (*i.e.*, Administration, Marketing, Incentives and Services, Implementation and Evaluation) for each program within the portfolio. Additionally, customer participation should be tracked by applications submitted within each program portfolio by customers served, committed, and completed projects along with corresponding program spending and savings achieved. Each portfolio should include the Gross Life Cycle in MWh as well by using the Expected Useful Life (EUL) factor for all measures within each program. Key Performance Indicators are needed for each program/portfolio to measure actual program spending and MWh savings achieved as compared to expected or budgeted to determine periodic performance results.

**COMMENTS BY THE HOME PERFORMANCE COALITION**
**BEFORE THE NEW JERSEY BOARD OF PUBLIC UTILITIES**
**FEBRUARY 15, 2019**

**IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS - DOCKET NO. QO19010040**
**Public Stakeholder Comments**

As leaders in the residential energy efficiency industry, the Home Performance Coalition (HPC)[1] respectfully responds to the January 22, 2019 request by the New Jersey Board of Public Utilities (NJ BPU) to provide feedback on questions, addressed here by number as presented, in order to support New Jersey's establishment of new energy efficiency and peak demand programs. This response links to several studies and resources to assist the NJ BPU staff.

***1) What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost- benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?***

The Home Performance Coalition prepared A Policymaker's Guide to Scaling Home Energy Upgrades for the Department of Energy's State Energy Efficiency Action in 2015, which continues to provide a good overview of the policies needed to advance residential energy efficiency in the "existing homes" space, and which are also relevant to demand response and peak demand reduction. We recommend this resource to support the NJ BPU in their efforts to reach New Jersey's energy efficiency and peak demand reduction goals. The report addresses policy design considerations and best practices for utility incentives, decoupling policies, and evaluation, measurement and verification (EM&V).

There have been notable updates, however, since the publication of the Policymaker's Guide—in particular on the issue of cost-benefit analyses. In 2017, the National Efficiency Screening Project published the National Standard Practice Manual (NSPM) to provide a comprehensive framework for assessing the cost-effectiveness of energy efficiency resources. The NSPM principles and step-by-step approach to developing a cost-effectiveness test are discussed in greater detail in comments on Question 8 below. Rhode Island, Arkansas and Minnesota are three examples of leading states that have applied the NSPM to review their current testing practices and identify opportunities for improvement, while the states of Connecticut and

[1] The Home Performance Coalition (HPC) is a national non-profit 501c3 organization that works with industry leaders in the home performance and weatherization industries to advance energy-efficient, healthy and safe homes retrofit policies, programs and standards through research, education, training and outreach.

Washington have processes underway, and New Hampshire is about to embark on a comprehensive review[2].

The Policymaker's Guide also describes the importance of data standards in enabling the quantification of energy savings that result from programs. The guide describes Home Performance Extensible Markup Language (HPXML), a national open data standard that specifies a data dictionary and standard data transfer protocol (xml), which was relatively new at the time of publication in 2015. This standard is now being used by more and more programs and is discussed in greater detail in the comments on Question 7 below.

Leading states such as California have also demonstrated the value of advanced data monitoring and improved data access through advanced metering infrastructure (AMI) for EM&V. New Jersey has been behind the curve on the implementation of AMI. Ensuring smart metering penetration across the residential sector would allow for data access and data monitoring that could improve the EM&V of residential efficiency programs while opening up policies like time of use rates and demand response programs to allow consumers to engage in reducing their utility bills. AMI interval meter data can also assist in developing load shapes to support energy efficiency and demand response programs. Programs that utilize smart meter data can emphasize savings when power is most expensive or polluting and, thus, energy savings are most valuable.

Lastly, any modern energy efficiency or peak demand reduction program must take into consideration new and emerging technologies; in particular, the evolving smart, grid-interactive technologies that are making buildings and facilities use energy more efficiently, as well as helping with load shifting and other peak demand reduction strategies. As detailed in the Home Performance Coalition's new report Redefining Home Performance in the 21st Century: How the Smart Home Could Revolutionize the Industry and Transform the Home-to-Grid Connection the use of smart technologies in homes is an important way to make the residential sector, and the homeowners and ratepayers who comprise it, a part of the energy grid solution. The first of ten recommendations in HPC's report calls on states like New Jersey to look at their home performance retrofits programs to recognize the value of adding smart technology. Historically, New Jersey's home performance programs have focused on improving the thermal quality of the building shell and increasing the efficiency of HVAC and other appliances. Smart home technologies add a third efficiency strategy: better control. In addition, smart home technologies provide extremely valuable byproducts: data and granular level monitoring capabilities. This data and monitoring capability provide an unprecedented ability to conduct near real-time quality control for home improvement installations. Time is money: for the

[2]As noted throughout these comments, case study reports and summaries of Arkansas, Minnesota, and Rhode Island efforts to apply the NSPM appear at: https://nationalefficiencyscreening.org/resources/case-studies/. Additional information on extent of NSPM references in state proceedings and other published documents can be found at: https://nationalefficiencyscreening.org/wp-content/uploads/2018/05/NSPM-References-summary-October-2018.pdf.

utility anticipating energy savings from home predictions, for the contractor who has to fill out endless forms for evaluations, for the programs that pay evaluators to tell them if their programs are performing to expectations. The NJ BPU should consider utilizing smart tools (AMI meters and home energy management systems) to do near real-time evaluations, address poor performing or over-predicting contractors, and reward contractors with work that exceeds expectations. By reducing evaluation and paperwork costs, programs can reach more customers and have more opportunity to meet energy savings targets. The smart home interface should also be leveraged to connect customers with home performance contractors. For example, local qualified contractor recommendations could be displayed on the customer's home energy management (HEM) app when a problem is detected with equipment in the home, or a voice assistant could contact the contractor directly on behalf of the homeowner.

We urge the commission staff to review the Smart Home report and its ten recommendations and incorporate smart technologies in the development of new energy efficiency and peak demand programs.

***7) What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommended for sharing that data?***

Home Performance Coalition urges the NJ BPU to enhance the ease and speed of access to digital utility data through policies that enable third-party access to consumer data while addressing privacy and security (e.g., Green Button). Contractors and programs need consumers' energy consumption data for modeling (e.g., calibrating models to actual energy consumption) and EM&V. Monthly billing data is sufficient for many of these purposes, but interval data (e.g., hourly or 15 minute) generated by AMI, as noted above, can help utilities assess the time and locational value of the energy being saved. The development of more granular load shapes would also support better integration of distributed energy sources, energy storage and grid-interactive technologies into New Jersey's electricity grid.

In order to ease data sharing of home performance retrofits, Home Performance Coalition also recommends that NJ BPU support data standardization in the residential energy efficiency industry by requiring the use of the national open data standard, Home Performance Extensible Markup Language (HPXML), for all residential energy efficiency programs. HPXML includes a data dictionary that creates a common "vocabulary" for the residential energy efficiency industry and a data transfer protocol that provides the basis for communication between software systems. It can be used to exchange information across these different software systems and is currently used by 11 programs across five different states in the U.S., including New York, Arizona, and California. The Weatherization Assistance Program has also committed to adopting HPXML over the next two years as it upgrades its software system. By adopting HPXML, residential programs can reduce transactional costs associated with transferring project data from third-party energy modeling or data collection tools to a program management database. It can also significantly reduce administrative costs by incorporating

automated data checks into its program software to validate for program eligibility, energy savings, quality assurance protocols, and more.

For example, one year after implementing the standard, the Arizona Public Service reduced quality assurance administrative labor by 50 percent. Participating Arizona home performance contractors also reduced administrative labor by 31 percent per project, leading to a 50 percent increase in contractor satisfaction with the program.

***8) What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?***

Home Performance Coalition (HPC) respectfully requests that NJ BPU review the fundamental principles of the May 2017 National Standard Practice Manual (NSPM), available on the National Efficiency Screening Project's website, which provides a comprehensive framework for assessing the cost-effectiveness of energy efficiency resources. The NSPM builds and expands upon the decades old California Standard Practice Manual. It offers a framework that is based on a set of core principles that focuses on ensuring alignment of testing practices with a jurisdiction's applicable policy goals. It addresses the importance of treating energy efficiency as a resource and the range of associated utility system impacts that should be considered in any cost-effectiveness analysis. The NSPM further emphasizes the principle of symmetrical treatment of relevant costs and benefits, and provides a range of approaches that can be used to account for applicable hard-to-monetize costs and benefits (such as non-energy impacts). The guidance covers a wide range of fundamental aspects of cost-benefit analyses (including data, assumptions, and methodology) and on the adequate consideration of all relevant costs and benefits for both the utility system and the non-utility system.

HPC believes the NSPM framework and its step-by-step approach would provide NJ BPU an opportunity to determine whether its current cost-effectiveness testing reflects New Jersey's own energy goals and policies—including the Clean Energy Act of 2018 which requires that cost-benefit analyses of energy efficiency programs and peak demand reduction programs consider both economic and environmental factors (sec. 3.d.2, p. 16).

. The NSPM sets forth the following broad set principles, which are applicable not only to energy efficiency, but also generally to other distributed energy resources:

National Standard Practice Manual Principles

| | |
|---|---|
| **Efficiency as a Resource** | EE is one of many resources that can be deployed to meet customers' needs, and therefore should be compared with other energy resources (both supply-side and demand-side) in a consistent and comprehensive manner. |

| | |
|---|---|
| **Policy Goals** | A jurisdiction's primary cost-effectiveness test should account for its energy and other applicable policy goals and objectives. These goals and objectives may be articulated in legislation, commission orders, regulations, advisory board decisions, guidelines, etc., and are often dynamic and evolving. |
| **Hard-to-Quantify Impacts** | Cost-effectiveness practices should account for all relevant, substantive impacts (as identified based on policy goals,) even those that are difficult to quantify and monetize. Using best-available information, proxies, alternative thresholds, or qualitative considerations to approximate hard-to-monetize impacts is preferable to assuming those costs and benefits do not exist or have no value. |
| **Symmetry** | Cost-effectiveness practices should be symmetrical, where both costs and benefits are included for each relevant type of impact. |
| **Forward-Looking Analysis** | Analysis of the impacts of resource investments should be forward- looking, capturing the difference between costs and benefits that would occur over the life of the subject resources as compared to the costs and benefits that would occur absent the resource investments. |
| **Transparency** | Cost-effectiveness practices should be completely transparent, and should fully document all relevant inputs, assumptions, methodologies, and results. |

***Incorporation of the NSPM***

Since the release of the NSPM in May 2017, the National Efficiency Screening Project (NESP) has worked with numerous states to provide briefings, host webinars and conduct workshops to examine ways to incorporate the NSPM principles and related step-by-step planning process into existing state approaches towards cost-effectiveness testing. Arkansas, Minnesota and Rhode Island are three examples of states that have incorporated aspects of the NSPM into their state planning and regulatory review processes on cost-effectiveness. Case studies published by NESP in December 2018 and January 2019 describe how the NSPM is being used in those three states, and are available at: https://nationalefficiencyscreening.org/resources/case-studies/.

We strongly recommend that the NJ BPU reflect on the state's own policy goals and objectives for energy efficiency investments as part of its efforts to revise and update New Jersey's cost-effectiveness testing approaches and determine the New Jersey-specific answer to Question 8. As the NJ BPU continues its planning and implementation process for the establishment of new energy efficiency and peak demand reduction programs pursuant to the New Jersey Clean Energy Act, HPC and other members of the National Efficiency Screening Project would be

pleased to brief the NJ BPU or other state Agencies on how a "New Jersey" test could be developed to best meet the needs of the policymakers and ratepayers in New Jersey.

Thank you for this opportunity to provide comments to this important process. Please do not hesitate to contact me with questions.

Sincerely,

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PHIL MURPHY
*Governor*

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STEFANIE A. BRAND
*Director*

February 15, 2019

***VIA ELECTRONIC MAIL***
***AND HAND-DELIVERED***
Hon. Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 S. Clinton Avenue, 3rd Floor, Suite 314
Trenton, New Jersey 08625-0350

**RE: In the Matter of The Implementation of P.L. 2018, C. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs BPU Docket No. QO19010040**

Dear Secretary Camacho-Welch:

Please accept the attached comments of the New Jersey Division of Rate Counsel ("Rate Counsel") regarding the above-referenced matter. Enclosed is one additional copy. Please date stamp the copy as "filed" and return to our courier. Thank you for your consideration and attention to this matter.

Respectfully submitted,

STEFANIE A. BRAND
DIRECTOR, DIVISION OF RATE COUNSEL

By: _____
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**IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS BPU DOCKET NO. QO19010040**

**COMMENTS OF THE DIVISON OF RATE COUNSEL**

**February 15, 2019**

1. **What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, [a.] administrative structures, [b.] performance incentives, [c.] cost-benefit analyses, [d.] decoupling policies, and [e.] evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

Rate Counsel provides the following comments on administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation as follows:

a. **Administrative structures**: There is no consensus about what type of administrative structure works the best, and the structure is best tailored to local factors. That said, the administrative structure should further program goals by supporting efficiency in operation, facilitating ease of participation by participants and providers, and promoting greater participation in programs. [See responses to Questions 3 and 5.]

b. **Cost-benefit analyses**: Rate Counsel supports the use of multiple cost benefits analyses, which examine the proposed measures from various perspectives. Specifically, Rate Counsel recommends the use of the following tests: (1.) the Total Resource Cost ("TRC") Test; (2.) the Participant Cost Test ("PCT"); (3.) the Societal Cost Test ("SCT"); (4.) the Program Administrator Cost Test ("PACT"); and (5.) the Ratepayer Impact Measure ("RIM") or other bill and rate impact test.

c. **Performance incentive:** See response to Question 11.

d. **Decoupling:** In testimony filed in a recent New Jersey utility base rate case, Rate Counsel witness Dr. David E. Dismukes presented his findings on decoupling mechanisms

among investor-owned electric and gas utilities, citing US Energy Information Administration data.[1] Dr. Dismukes found that only 35 electric utilities, out of 152 investor-owned electric utilities[2] have an active revenue decoupling mechanism (23 percent of total electric utilities) and only 44 natural gas utilities, out of 256 investor-owned gas utilities[3] have similar mechanisms (17 percent of total gas utilities). Decoupling is sometimes cited as an incentive to promote energy efficiency and conservation. Rate Counsel submits that there is no need for decoupling as a form of incentive here, however, since the recently enacted Clean Energy Act mandates that utilities achieve specific numerical reductions in energy use, with penalty provisions for non-attainment and performance incentives for meeting or exceeding high savings targets.[4]

e. **Evaluation**: Rate Counsel recommends the following for program evaluation:

i. Continue improving the current Protocols to Measure Resource Savings ("Protocols") and require the Protocols to be used by all energy efficiency ("EE") program administrators in the state. Further, the Protocols could include utility-specific values where applicable to allow for measure flexibility while encouraging statewide use. A growing number of states are switching to online savings protocols (often called technical reference manuals or "TRMs"). One significant improvement the state could implement early on is to turn the current PDF version of the Protocols into an online version which can be easily updated and is accessible by the public.

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[1] I/M/O PSE&G, BPU Dkt. Nos. ER18010029 and GR18010030 (direct testimony dated August 6, 2018). ("Dismukes Testimony").

[2] Dismukes Testimony, p. 6, citing Energy Information Administration Form 861, which includes utilities listed as "Investor Owned" engaged in electricity distribution.

[3] Dismukes Testimony, p. 6, citing Energy Information Administration Form 176, which includes utilities listed as "Investor Owned" or "Private" with nonzero residential sales volumes.

[4] See N.J.S.A. 48:3-87.9.

ii. Facilitate utility and state collaboration on impact evaluation studies for measures that are relevant across the state regardless of utility service area. To use limited budget and resources effectively, leading states often collaborate to conduct joint evaluation studies. The state and the utilities could even co-fund a joint study with entities in neighboring states. Examples include avoided cost studies, measure saturation surveys, lighting hour-of-use study, measure life studies, and incremental cost studies.

iii. Initiate evaluation planning when programs are being designed. Early consideration of the evaluation process - prior to program implementation - helps ensure that the necessary data will start to be collected upon implementation.[5]

iv. Use advanced data analytics to evaluate project performance. Data analytics can be used for evaluating the performance of energy efficiency programs in a timely manner and can reduce the need and the costs for on-site visits and measurement. The results of the use of data analytics can also be used to refine, calibrate, and assess the accuracy of deemed savings values in the Protocols in a timely manner.

v. Verification of savings, whether through a review or a formal impact evaluation, should be performed by an independent third party. This is especially important if performance incentives are based on savings achievements.

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[5] See The State and Local Energy Efficiency Network, "Energy Efficiency Program Impact Evaluation Guide" (p. 8-1).

2. **How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?**

The Clean Energy Act, at N.J.S.A. 48:3-87.9 (b), places certain requirements on the Board regarding cost-effectiveness:

> No later than one year after the date of enactment of P.L.2018, c.17 (C.48:3-87.8 et al.), the board shall conduct and complete a study to determine the energy savings targets for ***full economic, cost-effective potential*** for electricity usage reduction and natural gas usage reduction as well as the potential for peak demand reduction by the customers of each electric public utility and gas public utility and the timeframe for achieving the reductions. The energy savings targets for each electric public utility and gas public utility shall be reviewed every three years to determine if the targets should be adjusted. The board, in conducting the study, shall accept comments and suggestions from interested parties. [***Emphasis added.***]

Further, the Clean Energy Act also requires the application of benefit-to-cost analyses to evaluate the proposed programs. N.J.S.A. 48:3-87.9(d)(2). The Clean Energy Act provides that "[t]he methodology, assumptions, and data used to perform the benefit-to-cost analysis shall be based upon publicly available sources and shall be subject to stakeholder review and comment." N.J.S.A. 48:3-87.9(c). Hence, the proposed benefit-to-cost models must be presented for stakeholder review and comment before their acceptance by the Board.

At the outset, in order to develop the "full economic, cost-effective potential", the full benefits and costs of meeting energy efficiency targets should be included when developing the maximum threshold of the cost-effective potential. Benefits include, but are not limited to avoided energy, capacity, transmission and distribution costs; avoided environmental costs; risk avoidance benefits; and various non-energy benefits. In addition, the cost of achieving reductions must also be considered in terms of participant, ratepayer, and societal cost, including the effects of anticipated associated increases in utility rates. These benefits and costs would

also need to be fully defined in the process of revising the state's cost-effectiveness screening tests for EE and peak demand reduction ("DR") measures. The Clean Energy Act sets forth how the benefit-to-cost analyses should be applied:

> The energy efficiency programs and peak demand reduction programs shall have a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level, considering both economic and environmental factors.... [N.J.S.A. 48:3-87.9(d)(2).]

However, under the Clean Energy Act an EE or peak reduction program within a portfolio may have a benefit-to-cost ratio of less than 1.0 if "implementation of the program is in the public interest, including, but not limited to, benefitting low-income customers or promoting emerging energy efficiency technologies." N.J.S.A. 48:3-87.9(d)(2). Unless the programs fall within these exceptions, the 1.0 ratio standard should apply.

3. **What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a statewide approach, and how can they be overcome?**

Low-income, residential, multi-family, small commercial, local government, and product programs are particularly suited for state-wide implementation. These are typically large scale programs which can benefit from economies of scale in administration and cost. Further, outreach and educational programs can be developed to reach a larger state-wide audience.

The Clean Energy Act requires utilities to perform demographic studies to identify market barriers that prevent all of its customers from participating in implementing EE measures. N.J.S.A. 48:3-87.9(f)(2). So, some flexibility in the scope and range of programs must be accorded in response to the demographic studies. More time might be required to address market barriers. In the near term, CEP and utility-administered programs should continue, using uniform state-wide criteria for incentives, eligibility and rules.

In sum, residents throughout the state of New Jersey should have equal access to low-income, residential, and multifamily offerings. Similarly, small commercial and local government customers throughout the state of New Jersey should have access to programs, with uniform, clear rules for eligibility and acceptable EE and DR measures.

Further, because it can be difficult to restrict participation in upstream programs by contractors and builders to a specific utility, this is an area where a statewide model makes sense. There are also be benefits to offering other programs focused on energy efficiency products on a wider, statewide scale, such as standardization of rebate offerings and product promotions to influence (transform) the market.

4. **How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?**

Driving down the cost of administering the programs, optimizing ease of use, and maximizing results is an ongoing process. However, as a general principle, statewide program administration could be leveraged to avoid or minimize duplication, confusion, and free ridership, as well as to tap into economies of scale and scope. Administration could be further refined going forward.

Benchmarking studies could identify areas for improvement. Frequent impact and process evaluation studies, (e.g. every year for impact evaluations and every two to three years for process evaluation studies) will help to identify areas for improvement and inform how the program designs, delivery mechanisms, and marketing strategies should be modified. Furthermore, the demographic studies required by N.J.S.A. 48:3-87.9(f)(2) can be used to design programs which are more responsive to potential program participants, thereby maximizing program participation and energy savings.

While Rate Counsel does not endorse all of the measures set forth in the following documents, they may be of value to begin a discussion of program improvements: ACEEE (2019) Fourth National Review of Exemplary Energy Efficiency Programs, available at https://aceee.org/research-report/u1901; ACEEE (2015) Expanding the Energy Efficiency Pie: Serving More Customers, Saving More Energy Through High Program Participation, available at https://aceee.org/research-report/u1501; Institute for Industrial Productivity (2012). Energy Efficiency Resource Acquisition Program Models in North America, available at https://aceee.org/research-report/ie126; ACEEE (2014) Successful Practices in Combined Gas and Electric Utility Energy Efficiency Programs, available at https://aceee.org/research-

report/u1406; and U.S. EPA. National Action Plan for Energy Efficiency, available at https://www.epa.gov/energy/national-action-plan-energy-efficiency-report.

5. **What is the best way to minimize administrative costs and avoid duplicative administrative structures?**

In New Jersey, there are several entities administering efficiency, including the statewide Clean Energy Program ("CEP"), utilities that opt to offer complementary programs under the RGGI Act legislation[6], and the Comfort Partners utility collaborative. Each entity has different administrative structures, targets, and measures.

The Clean Energy Act establishes standards for utility energy efficiency program achievement. Those standards, bolstered by incentives to the utilities for achieving energy efficiency performance targets and penalties for failing to achieve them expand the roles of the utilities in relation to the state-managed CEP in delivering energy efficiency. The aim should be to avoid competition between program administrators and to reduce consumer and contractor confusion associated with having competing program offerings.

One option is to clearly delineate the market segments and/or program types targeted by the utilities and state-run programs. For example, in New York, the recent restructuring of the state's energy efficiency programs assigned the lion's share of conventional energy efficiency programs to the state's utilities. As a result, NYSERDA-administered programs now focus on market transformation, low-income households, and other defined segments.

Similarly, the CEP plays an important role in offering statewide programs that are clearly better offered by a single statewide administrator to maintain consistency across the state. The CEP currently serves statewide markets, but not exclusively. Utilities should be responsible for defined market segments that are not assigned to CEP. Programs that leverage the utility's relationship with customers, or that reflect the unique aspects of its service territory, are good candidates for the utilities to administer. There are also programs, such as on-bill financing that

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[6] See N.J.S.A. 48:3-98.1.

utilities can offer but the OCE cannot. The utility programs should be geared toward taking advantage of the programs that complement and add to OCE programs.

Utilities that do not currently have the same ability or willingness to administer efficiency programs might consider assigning their energy efficiency program responsibilities to a third-party administrator. This, of course, would not absolve the utility of its obligation to meet the energy reduction targets set by the Clean Energy Act. Ideally, this administrator would serve all such utilities in the state to maintain consistency across utility jurisdictions. Under this model, utilities who have demonstrated commitment to implementing their efficiency programs could continue to do so, while others would contractually assign their responsibilities to a third party.

Such a model is not without precedent in New Jersey. The Comfort Partners program, which provides energy efficiency assistance to low-income customers in New Jersey, attempts to serve all eligible low-income customers regardless of service territory. The Comfort Partners program is administered by a collaborative of the utilities and funded by the Societal Benefits Charge. This approach works if utilities do not administer competing low-income programs, but rather delegate this task fully to the collaborative. Comfort Partners may serve as a model for other energy efficiency and DR programs in the state.

In Massachusetts, the electric and gas program administrators ("PAs") have unified their resources through Mass Save. Mass Save is a collaborative that allows all customers in the state to access efficiency resources in one location but receive service directly from the PA in their territory. In most cases, the PAs offer the same measures and incentive levels, so customers throughout the state can take advantage of the same programs. However, the PAs still have the flexibility to provide unique measures and demonstration projects without imposing a statewide change.

The utilities in New Jersey can help bridge the inconsistencies of offerings across the state by coordinating regularly. In Massachusetts, working groups exist that cover all aspects of energy efficiency and are attended by the PAs and key stakeholders. These groups are particularly successful because the state has adopted common program and measure names. Shared naming conventions reduce confusion and make for more productive statewide discussions.

It is also possible to have the investor-owned utilities offer their own programs without a single statewide administrator. However, this utility-based model needs careful coordination among the utilities. Given that the CEP has been serving and ensuring consistent offerings across most of New Jersey for a decade, Rate Counsel does not recommend a model in which the utilities each offer their own programs with no coordination.

All of these administrative structures present challenges. Statewide coordination and collaboration will play a key role in all options involving utilities to ensure that all ratepayers have equal access to programs and to minimize customer and contractor confusion. In any case, New Jersey should keep the CEP "brand" to be used by both utility and third-party administrators in order to maintain continuity with the historical practice and consistency across the state. Again, the use of third-party PAs or other administrative models does not absolve the EDCs and GDCs of their respective energy savings requirements under the Clean Energy Act.

6. **What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?**

At the outset, the CEP's commitments to customers should be taken into account. Ideally, customers who have already applied for incentives or have signed contracts committing to implement measures in the near future should continue to interact with CEP. Additionally, the current contractual commitments of CEP with vendors will need to be considered in developing a transition schedule.

Any transition will also need to reflect which administration model the state decides to pursue. With either of the approaches described above in response to Question 5, statewide coordination will be important throughout the transition and beyond for minimizing customer and contractor confusion. Channels for communicating with the energy efficiency community (e.g., the stakeholder group, and existing contractor networks) should be considered an essential part of any transition plan.

7. **What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommend for sharing that data?**

One aspect of data availability is transparency. In New Jersey, historical and current efficiency data are difficult to access, limiting the opportunity for shared resources between the utilities. In Massachusetts, the efficiency program administrators ("PAs") upload quarterly reports on "Mass Save Data", the database associated with Massachusetts' Mass Save energy efficiency program. The "Mass Save Data" database shows participants, expenditures, savings, and benefits on a quarterly basis by program and PA. Moreover, the "Mass Save Data" database is public and transparent, and it allows PAs in Massachusetts to compare their individual progress to the rest of the state, among other things. Improved access to New Jersey's aggregate energy efficiency data could help spur the programs to be more successful.

In addition to data transparency, there may be an opportunity to leverage the work previously done by the CEP's Data Working Group. Uniform recording and compilation of participating customer data by measure, equipment type, energy usage, etc., may help to evaluate performance and facilitate innovative ways of financing energy efficiency and demand side management projects.

Finally, data privacy must be considered. Any sharing of individual customer data must comport with Board rules.

8. **What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?**

The Clean Energy Act provides that "[t]he methodology, assumptions, and data used to perform the benefit-to-cost analysis shall be based upon publicly available sources and shall be subject to stakeholder review and comment." N.J.S.A. 48:3-87.9(c). Accordingly, the cost and benefit inputs for proposed cost-benefit analyses need to be quantified as much as possible, with supporting data and transparent assumptions. Further, the proposed analyses must be subject to review and comment in a stakeholder process.

The Clean Energy Act also calls for consideration of both economic and environmental factors, as well as serving the needs of low-income communities. Therefore, various environmental factors (e.g., greenhouse gas emissions, water and land impacts) as well as job impacts, and various low-income benefits need to be considered in benefit-cost analyses. Finally, as stated earlier, the following cost-benefit tests should be applied in order to gage the effects of a proposed program or measure from multiple perspectives: (1.) the Total Resource Cost ("TRC") Test; (2.) the Participant Cost Test ("PCT"); (3.) the Societal Cost Test ("SCT"); (4.) the Program Administrator Cost Test ("PACT"); and (5.) the Ratepayer Impact Measure ("RIM") or other bill and rate impact test.

9. **What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?**

The Clean Energy Act set forth the composition of the Independent Advisory Committee ("IAC") as follows: "representatives from the public utilities, the Division of Rate Counsel, and environmental and consumer organizations...." N.J.S.A. 49:3-87.9(f)(1). Rate Counsel recommends that "consumer organization" members of the IAC should include, at least, representatives of low income housing organizations, social service organizations, economic development agencies, labor organizations, contractors, senior citizen organizations, small business, and manufacturing organizations.

Further, the Clean Energy Act sets the objectives of the IAC:

- [1.] to study the evaluation, measurement, and verification process for energy efficiency and peak demand reduction programs
- [2.] to provide recommendations to the board for improvements to the programs.[7]

For operational and organizational purposes, the IAC could be divided into two subgroups along the lines of these tasks. The first group of IAC tasks is technical in nature and requires some degree of subject matter expertise. The second group of IAC tasks is more policy-oriented in general and amenable to more widespread involvement. Nonetheless, all members of the IAC should be permitted to participate in either or both subgroups as they see fit. In general, the IAC should include individuals who are able to be consistently engaged over a period of time, have authority to speak or take action on behalf of a group or organization, and represent a group of customers (rather than a single customer).

More specifically, the Independent Advisory Committee should be charged with:

[7] N.J.S.A. 49:3-87.9(f)(1).

- Advising and assisting in developing, implementing, and evaluating cost-effective efficiency programs to meet energy savings goals. The committee should be consulted in all aspects of energy efficiency administration--from goal setting and program design, through evaluation, and everything in between.
- Providing consistency among efficiency offerings throughout the state by bringing all program administrators and interested parties together at one table to discuss program design, implementation, and evaluation. This approach can reduce time, effort, and ratepayer dollars spent on proceedings or settlement negotiations. Further, it streamlines and focuses Board review of proposals.
- Ensuring that meaningful programs are available and accessible to all customer classes, as well as subgroups within the classes, such as low-income and other groups.

There are also a few overarching principles to observe when establishing the committee:[8]

- Provide a clear objective, which clarifies the duration and scope of the Committee. The Board should also ensure that members understand that the purpose of the Committee is to bridge differences.
- Establish ground rules to ensure balanced participation from many types of stakeholders, and to provide transparency.
- Provide public access to meetings and meeting materials.
- Periodically assess the Committee, to inform whether it should be continued, and whether changes to its mission and operating practices would improve its effectiveness.
- Employ an experienced facilitator, to ensure all attendees have a chance to express their views.
- Ensure that the Committee's findings and conclusions are presented to the Board.

[8] See State and Local Energy Efficiency Action Network (2015) Energy Efficiency Collaboratives, Available at https://www4.eere.energy.gov/seeaction/system/files/documents/EECollaboratives-0925final.pdf

10. **How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?**

The Clean Energy Act addresses the factors included in the energy savings attributable to a public utility:

> A public utility may apply all energy savings attributable to programs available to its customers, including demand side management programs, other measures implemented by the public utility, non-utility programs, including those available under energy efficiency programs in existence on the date of enactment of *P.L.2018, c.17* (*C.48:3-87.8* et al.), building codes, and other efficiency standards in effect, *to achieve the targets established in this section.* [*Emphasis added;* N.J.S.A. 48:3-87.9(c).]

Further, the Clean Energy Act also addresses how such non-utility programs are factored into the QPIs:

> No later than one year after the date of enactment of *P.L.2018, c.17* (*C.48:3-87.8* et al.), the board shall adopt quantitative performance indicators pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (*C.52:14B-1* et seq.) for each electric public utility and gas public utility, which shall establish reasonably achievable targets for energy usage reductions and peak demand reductions *and take into account the public utility's energy efficiency measures and other non-utility energy efficiency measures including measures to support the development and implementation of building code changes, appliance efficiency standards, the Clean Energy program, any other State-sponsored energy efficiency or peak reduction programs, and public utility energy efficiency programs that exist on the date of enactment of P.L.2018, c.17 (C.48:3-87.8 et al.).* [*Emphasis added;* N.J.S.A. 48:3-87.9(c).]

With respect to the award of any incentives, only savings attributable to utility programs should count towards any incentives. The Clean Energy Act provides that a public utility shall receive incentives or penalties based in the performance of "*its* energy efficiency measures and peak reduction measures." N.J.S.A. 48:3-87.9(e)(2),(3) [*Emphasis added.*] For example, savings attributable to building codes and appliance standards should not count towards claimed savings.

11. **How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?**

The Clean Energy Act provides for both incentives and penalties. See N.J.S.A. 48:3-87.9(e.)(2), (3), and (4). However, certain steps need to be taken prior to such actions. First, the Board must establish Quantitative Performance Indicators ("QPIs") for each utility based on a number of factors:

> In establishing quantitative performance indicators, the board shall use a methodology that *incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties determined pursuant to subsection e. of this section and section 13 of P.L.2007, c.340 (C.48:3-98.1) are based upon performance, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources. In establishing quantitative performance indicators, the board shall also consider each public utility's customer class mix and potential for adoption by each of those customer classes of energy efficiency programs offered by the public utility or that are otherwise available.* [*Emphasis added;* N.J.S.A. 48:3-87.9(c).]

As a measure of potential for adoption of measures by customer class, the market potential studies mandated by the Clean Energy Act should form the basis for the QPIs. The market potential studies examine the potential energy savings for each utility based on a number of relevant factors:

> No later than one year after the date of enactment of *P.L.2018, c.17* (*C.48:3-87.8* et al.), the board shall conduct and complete a study to determine the energy savings targets for full economic, cost-effective potential for electricity usage reduction and natural gas usage reduction as well as the potential for peak demand reduction by the customers of each electric public utility and gas public utility and the timeframe for achieving the reductions. The energy savings targets for each electric public utility and gas public utility shall be reviewed every three years to determine if the targets should be adjusted. The board, in conducting the study, shall accept comments and suggestions from interested parties. [N.J.S.A. 48:3-87.9(b).]

In sum, the Clean Energy Act recognizes that reductions in energy use and peak demand may be attributable to factors other than utility EE and DR measures. A variety of factors may influence program participants and energy savings. Weather may be colder or warmer at the time when actual utility reduction performance is assessed, versus the historical normal weather trends during the three-year period used to set the reduction percentage under N.J.S.A. 48:3-87.9(a). Other factors may occur that could impact energy use, such as the economy and commodity (electric energy and gas) prices. These factors affect energy use, beyond utility-sponsored energy efficiency programs.

As set forth in the excerpts above, the Clean Energy Act recognizes other factors affecting energy use besides EE and DR measures. Therefore, proceedings to consider the award of any incentives under the Clean Energy Act must be subject to evidentiary hearings and testimony, if necessary, to examine the factors which affected energy use. A process is needed to verify utilities' "savings" estimates Furthermore, any claimed reductions in energy under consideration for incentives must be examined in terms of how the utility-sponsored programs fared in achieving the market potential for energy savings and QPIs. The OCE needs initiate a process to develop the methodologies that incorporate various factors into the QPIs, such as economic factors and customer growth.

Energy savings achievements should be used in the formula for determining incentives, specifically for scaling incentives and as the basis for deadbands in which no incentives or penalties are assessed (e.g., penalties would be imposed at 95% of the target, and increase in conjunction with lower verified energy savings). Rate Counsel recommends that incentives should start at a level beyond the level required by the Act (e.g., 105%) and move higher commensurate with savings achievements above that point. This deadband will reduce

contention over small deviations in performance around the target. It is important that incentives be tied to reasonably high achievement (savings). In sum, incentives must be tied to energy savings, because if incentives are only tied to EE spending, there would be an incentive to just increase spending without increasing energy savings. Furthermore, with performance incentives, it is good practice to review performance periodically to assess their effectiveness.

In addition, energy savings achievements should be verified through review or impact evaluation by an independent third party. This review or evaluation should consider other factors that impact energy savings, as well as programmatic considerations like free ridership. This review or evaluation should be subject to review in a regulatory proceeding.

Finally, any incentive should track linearly the value of such savings. N.J.S.A. 48:3-87.9(f). Any utility claiming incentives should be required to demonstrate the value of the reductions in terms of emissions reductions, avoided costs, jobs, economic savings and other relevant factors.

12. **Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?**

The Board should convene a proceeding to develop minimum filing requirements ("MFRs") not unlike those convened to establish MFRs for RGGI Act and Infrastructure Investment Program filings. At this juncture, in concept annual petitions should include information needed to evaluate the performance incentive/penalty criteria, including annual and lifecycle electricity, natural gas and other fuel savings (in MWh, therms, or MMBtu), electricity peak load savings in MW, participation counts, data on percent of customers served, total program costs in net present value, total program benefits in net present value, and benefit-cost ratios. Further, annual filings should also compare results in each of the aforementioned categories and compare actual results with projected results.

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February 15, 2018

***VIA ELECTRONIC MAIL***
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Secretary Aida Camacho-Welch
New Jersey Board of Public Utilities
Office of Policy and Planning
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RE: New Jersey Energy Efficiency and Peak Demand Reduction

Dear Secretary Camacho-Welch:

We appreciate the opportunity to provide the following comments to the New Jersey's Board of Public Utilities ("BPU") in consideration of new energy efficiency ("EE") and peak demand reduction programs required by P.L. 2018, c.17, the Clean Energy Act.

Ingersoll Rand (NYSE:IR) is a global company that advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to increase industrial productivity and efficiency, enhance the quality and comfort of air in homes and buildings, and commercial transport; and to protect food and perishables.

One of the most significant core competencies of Ingersoll Rand is EE. We implement EE solutions within our own operations, but more importantly deliver EE solutions to our customer which has significant impact on society. Public policy, including the regulatory environment with utilities, can help over-drive consumer investments for delivery of positive financial returns for consumers but also in helping our grid mature.

We also manufacture CALMAC® ice storage tanks within our Trane® portfolio in Fair Lawn, NJ. The ice tanks work in line with chilled water systems and integrated controls to create thermal energy storage ("TES") systems, a proven energy storage technology. To date, more than 70 MWh have been installed throughout New Jersey with more than 1 GW installed globally. CALMAC and Trane have installed many thermal energy storage projects across New Jersey including the following:

- Perth Amboy School District: Two school installations, with additional sites under consideration. Helps the district save on electricity costs.
- West Long Branch School District: one installation. Designed for energy cost savings.
- Rutgers Athletic Center: one installation in 2016 to mitigate spiky air-conditioning demands at their basketball arena.
- CALMAC's own manufacturing facility in Fair Lawn. Thermal storage installation delivers $12,000 in annual energy savings.

The deployment of TES can also help New Jersey achieve its clean energy goals. TES is well suited to "storing" the wind energy it uses at night for daytime use.[1] This enables emission-free energy to be utilized during the day and reduces the need for peaking fossil fuel plants.

Ingersoll Rand supports efforts to encourage the adoption of energy efficiency and energy storage technologies for the benefit of electric customers in New Jersey. We are encouraged that the BPU is soliciting comments addressing implementation that will ultimately facilitate the affordable distribution of energy as the state transitions to 100 percent clean energy by 2050.[2]

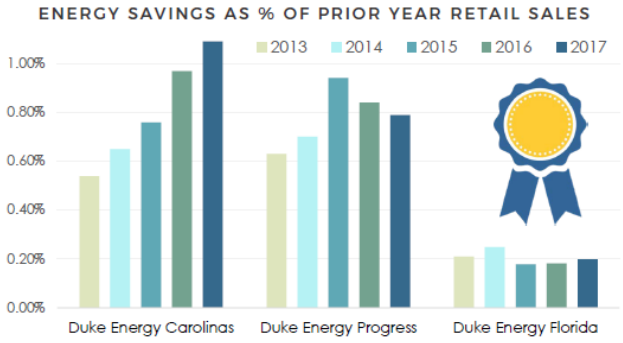
Our comments are presented below.

[1] https://tc0609.ashraetcs.org/documents/research/TC0609%20ASHRAE%20RP-1607%20Research%20Summary%2020180125.pdf
[2] https://nj.gov/emp/energy/

BPU Question 1. *What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?*

Shared savings models work.

We support shared savings models that enable utilities to profit from energy efficiency programs that promote cost effective technologies. These models are currently in effect in North Carolina, Ohio, Kentucky, and South Carolina. Per the Southern Alliance for Clean Energy, these programs result in higher kWh savings.[3] As shown in the chart below, states using these models (Carolinas) generate higher energy savings than those that do not (Florida).[4]




Decoupling works.

We also support decoupling because it incentivizes utility support for reduced energy consumption. This enables utilities to earn lost revenues for reduced kWh volumes from cost-effective energy efficiency programs.

[3] https://cleanenergy.org/wp-content/uploads/2018-Energy-Efficiency-in-the-Southeast-SACE-2.pdf
[4] https://cleanenergy.org/wp-content/uploads/2018-Energy-Efficiency-in-the-Southeast-SACE-2.pdf, slide 5.

Energy efficiency resource standards.

We see significant benefits associated with robust energy efficiency resource standards. These are implemented in 35 states and Washington, DC, today, with the more significant targets set at 1.5-2% annual reduction. We have seen these be financially attractive at the utility level, but also are contributors to local jobs. Nationally, energy efficiency creates 2.2 million jobs which are spread broadly across rural and urban areas. Therefore, this can have quite positive economic impacts at all levels of society. In the past decade, there has been significant expansion of decoupling and Energy Efficiency Resource Standards implementation across US States.[5]

The most effective incentives are transparent, front-loaded and regularly available.

Transparent incentives offer a prescribed amount of customer rebates, enabling customer calculation of capital costs when comparing an efficiency or demand-saving measure to other HVAC options that are available.

Front-loaded incentives are paid out after the project's commissioning, or after one year of monitored and verified operation. These are important because when it comes to large equipment expenditures, customers across all sectors place a heavy discount on savings earned in subsequent years. While individuals happily invest in a 7-10% bond, most large customers are unwilling to make investments that yield less than a 25-33% return on investment (which equates to a 3- or 4- year simple payback). This often has to do with the budget constraints of public sector customers, and the short-term tenancy of private real estate owners.

Rebates that are available on an ongoing basis are the most impactful because all customers, particularly schools, hospitals, and universities with very regimented capital planning processes, tend to take advantage of incentives when replacing equipment that is at the end of its life.

[5] downloadable at http://www.bcse.org/factbook/, slide 100

New York's Con Edison has more meaningful HVAC efficiency incentives.

We have seen benefits from the NJ SmartStart Buildings program but the HVAC chiller incentive does not ensure high efficiency during peak load periods because the incentives are higher for part load efficiency, which represents a seasonal average efficiency, not a peak load efficiency.[6] As an alternative, the New York Con Edison program incentivizes full load performance rather than part load for HVAC chillers.[7] This can have a more significant impact on peak load while also helping with overall kWh usage.

BPU Question 3. *What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?*

We support unique incentives across service territories because grid situations are so diverse. However, we support technology neutral eligibility criteria and rules across all service territories.

BPU Question 8. *What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?*

In addition to the avoided cost of energy, capacity and T&D, the state should consider emissions and/or carbon savings in order to ensure alignment with other state policies. California is currently re-evaluating its self-generation incentive program (SGIP) because the technologies that have been deployed to date have not sufficiently reduced emissions.[8] The value of reduced emissions is illustrated by the Regional Greenhouse Gas Initiative (RGGI).

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[6] http://www.njcleanenergy.com/files/file/NJSSB%20Materials/FY19%20Apps/FY19%20Electric%20Chillers(1).pdf

[7] http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/72c23decff52920a85257f1100671bdd/$FILE/TRM%20Version%205.2%20-%20April%202018.pdf, P. 231.

[8] http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Demand_Side_Management/Customer_Gen_and_Storage/2016-2017_Self-Generation_Incentive_Program_Impact_Evaluation.pdf

Measurement and verification methodologies should be based on actual performance as much as possible. Demand response programs can heavily discount technologies, which distorts the value to the grid and can lead to undervalued investments by utility customers.[9]

BPU Question 10. *How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?*

We support utility compensation for energy efficiency savings that incentivize technologies that perform above current building codes and efficiency standards.

BPU Question 11. *How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?*

Please see response to question 1.

BPU Question 12. *Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?*

We support the inclusion of the following:

- Program cost
- MWh savings achieved
- MW savings achieved

[9] https://wcec.ucdavis.edu/wp-content/uploads/2017/11/Thermal-Energy-Storage-Case-Study.pdf

- Avoided costs
- Emissions saved

Please contact me with any questions.

Sincerely,

*Nanette Lockwood*

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February 15, 2019

**VIA ELECTRONIC MAIL AND REGULAR U.S. MAIL**

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**Re: In the Matter of the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs – Docket No. QO 19010040**

**Jersey Central Power & Light Company's Written Comments in Response to Board Staff's January 22, 2019 Notice of Public Meeting on Energy Efficiency and Peak Demand Reduction**

Dear Secretary Camacho-Welch:

Jersey Central Power & Light Company ("JCP&L" or the "Company") is pleased to submit comments on the twelve questions identified by New Jersey Board of Public Utilities ("BPU" or the "Board") Staff to establish policy to support development of the new investor-owned electric and gas utilities energy efficiency ("EE") and peak demand reduction ("PDR") programs required by P.L. 2018, c. 17 (the "Act," codified in relevant part as N.J.S.A. 48:3-87.9).

JCP&L thanks the Board and Board Staff for the opportunity to provide these comments. JCP&L believes that the extensive experiences of its affiliated utilities in implementing successful, comprehensive utility-led EE and PDR programs in other jurisdictions will prove helpful to the Board.

Please find below JCP&L's comments on relevant items within the above-mentioned twelve questions identified by Board Staff. JCP&L hopes the Board and Board Staff considers these comments in developing the policies supporting the utilities' EE and PDR programs.

1. **What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

JCP&L Comments:

In 2007, the Environmental Protection Agency ("EPA") released its National Action Plan for EE. The Plan was a private-public initiative "to create a sustainable, aggressive national commitment to energy efficiency through the collaborative efforts of gas and electric utilities, utility regulators, and other partner organizations."[1] As part of this effort, the EPA released a publication titled "Aligning Utility Incentives with Investment in Energy Efficiency," which addressed the important role utility incentive mechanisms play in implementing comprehensive EE policies and programs.[2] As discussed in more detail in the Company's response to question eleven below, effective EE incentive policies typically address three main areas: (1) timely program cost recovery; (2) lost revenue recovery; and (3) performance incentives, such as shared savings mechanisms. The first two of these focus on removing the potentially negative impacts on utilities resulting from the implementation of comprehensive EE programs, and the third incents the utility to strive to meet and exceed established savings targets.

As discussed in the Company's October 12, 2018 written comments on the Energy Master Plan, JCP&L believes it is important for the Board to allow full and timely cost-recovery of program costs, including lost revenue, as customers avail themselves of the EE programs being offered by the utility. This is both consistent with the Act's mandate and good energy efficiency policy. As an example, Massachusetts and Rhone Island reward utilities with performance incentives for achievement (and exceedance) of their electric and gas efficiency targets, with incentives starting when the utility achieves 75% of its savings targets. In addition, JCP&L recommends that the Board strongly consider implementing an incentive mechanism based on a shared savings framework as detailed in the Company's response to Board Staff's eleventh question below. Such a mechanism would be consistent with the Act's intent to reward a utility's exceptional performance towards meeting and exceeding its targets. Moreover, the implementation of a shared savings mechanism aligns utility and customer interests by providing utilities with a share of the net benefits they help create for customers, further encouraging the utilities to maximize customer benefits through innovative and efficiently run programs.

On a different note, JCP&L also encourages the Board to look towards other states' use of independent evaluators to assist the utilities with estimating and reporting all savings that can contribute toward the targets. The Act sets extremely ambitious savings targets that will require well-coordinated contributions from a wide-range of resources. As discussed in detail below, many of these sources from which savings may be counted towards the targets fall outside the utilities' influence and control. Additionally, while New Jersey's existing protocols for the measurement of savings work for traditional programs, they will need expanded to address other

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[1] *See* "National Action Plan for Energy Efficiency," U.S. Environmental Protection Agency, https://www.epa.gov/energy/national-action-plan-energy-efficiency (last visited Feb. 8, 2019).
[2] *See* "Aligning Utility Incentives with Investment in Energy Efficiency: A Resource of the National Action Plan for Energy Efficiency," United States Environmental Protection Agency (Nov. 2007), *available at* https://www.epa.gov/sites/production/files/2015-08/documents/incentives.pdf (last visited Feb. 8, 2019).

measures referenced in the Act, such as building code changes and appliance efficiency standards. As such, clear methodologies must be developed to accurately estimate and report the savings these programs provide. These are all areas in which the expertise of an independent evaluator would be beneficial. Because of this, neighboring states have developed models where the utilities use independent evaluators to assist with the capture and measurement of EE savings, complemented by a statewide evaluator that verifies the measured savings and reports to the regulator. JCP&L recommends the Board adopt a similar structure in New Jersey.

2. **How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?**

JCP&L Comments:

N.J.S.A. 48:3-87.9(a) provides, in relevant part, that "[t]he amount of reduction mandated by the board [to be achieved by the utilities] that exceeds two percent of the average annual usage for electricity and 0.75 percent of the average annual usage for natural gas for the prior three years shall be determined pursuant to the study conducted pursuant to subsection b. of this section until the reduction in energy usage reaches the full economic, cost-effective potential in each service territory, as determined by the board." N.J.S.A. 48:3-87.9(b) further provides, again in relevant part, that "the board shall conduct and complete a study to determine the energy savings targets for full economic, cost-effective potential for electricity usage reduction and natural gas usage reduction as well as the potential for peak demand reduction by the customers of each electric public utility and gas public utility and the timeframe for achieving the reductions." In short, the Board must complete the study for each utility and use the results to inform its determination of the utilities' savings targets.

The study contemplated by Subsection (b) outlined above is often referred to in the industry as a Market Potential Study ("MPS"). These studies are commonly conducted in many of the jurisdictions in which JCP&L's affiliated utilities operate and, accordingly, JCP&L is familiar with the efforts normally involved and the information that typically results from an MPS. For the reasons detailed below, JCP&L encourages the Board to focus on the program potential found by the MPS when determining the "full economic, cost effective potential" of the utilities' programs.

An MPS typically evaluates and distinguishes between four different types of energy efficiency potential: (1) technical potential; (2) economic potential; (3) achievable potential; and (4) program potential. It is the program potential, with consideration of program spending and customer bill impacts, that is primarily used around the country to design EE and PDR programs. The four different types of energy efficiency potential can be generally defined as described below:

- Technical Potential: the theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints such as cost-effectiveness, cost and the willingness of end users to adopt the efficiency measures.

Technical potential is constrained only by factors such as technical feasibility and applicability of measures.[3]

- Economic Potential: the subset of technical potential that is economically cost-effective as compared to conventional supply-side energy resources. Economic potential follows the same adoption rates as technical potential. In addition, similar to technical potential, the economic scenario ignores market barriers including the willingness of customers to adopt efficiency measures. Economic potential also only considers the costs of efficiency measures themselves, ignoring any programmatic costs (e.g. marketing, analysis, administration) that would be necessary to capture them.[4]

- Achievable Potential: the amount of energy use that efficiency can realistically be expected to displace, assuming the most aggressive program scenario possible (e.g., providing end users with payments for the entire incremental cost of more efficient equipment). This is often referred to as *maximum achievable potential*. Achievable potential takes into account real-world barriers to encouraging end users to adopt efficiency measures, the non-measure costs of delivering programs (for administration, marketing, tracking systems, and monitoring and evaluation), and the capability of programs and administrators to boost program activity over time.[5]

- Program Potential: the program potential is the efficiency savings that can be realistically realized from the achievable potential, given the budget, staffing, and time constraints for the efficiency program. Program potential establishes the total, or gross, savings expected from a program.[6]

JCP&L encourages the Board to focus on the Program Potential determined by the MPS when establishing the quantitative performance indicators ("QPIs") for each of New Jersey's utilities as required by N.J.A.C. 48:3-87.9(c). That provision provides that the Board "shall also consider each public utility's customer class mix and potential for adoption by each of those customer classes of energy efficiency programs offered by the public utility or that are otherwise available." Of the types of energy efficiency potential typically determined by an MPS, only the Achievable Potential and Program Potential take into account these factors that are dictated by statute. Given that the Achievable Potential sets the upper bound of what could conceivably be obtained from the identified program opportunities (e.g., with payments for the entire incremental cost of more efficient equipment), the Board will also need to look at the Program Potential, which considers the appropriate level of incremental costs, overall program spending levels, staffing and time constraints when setting the performance targets. As such, the Board should focus on the

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[3] *See* "Guide for Conducting Energy Efficiency Potential Studies: A Resource of the National Action Plan for Energy Efficiency," United States Environmental Protection Agency (Nov. 2017), *available at* https://www.epa.gov/sites/production/files/2015-08/documents/potential_guide_0.pdf (last visited Feb. 11, 2019).
[4] *Id.*
[5] *Id.*
[6] *Id.*

Program Potential to ensure that the utilities' QPIs are based on realistic and achievable savings expectations, which requires assessment of the potential in the market, potential customer participation, estimated costs and projected savings. For these reasons, JCP&L believes the Board should focus on each utilities' Program Potential determined by the MPS completed for each utility, as well as considerations of customer bill impacts, when setting QPIs for the utilities.

3. **What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?**

JCP&L Comments:

JCP&L believes that the Board should be cautious when it comes to dictating what programs, if any, should be implemented statewide or through a single statewide implementer. The Act requires each individual utility to meet QPIs in its service territory or face potential penalties. Regulations that require statewide implementation of programs may hinder the utilities' ability to achieve compliance with these mandates within their respective service territories. Accordingly, instead of dictating what programs should be run at a statewide level, the Board should focus on allowing the utilities flexibility to run programs in the most effective manner for their customers.

As discussed previously in NJUA's oral comments at the public hearing held in this proceeding, the individual utilities are in the optimal position to determine what program offerings, program designs, and implementation strategies will be best received by their customers. This is because each of the utilities has unique insight into the factors that can potentially impact program adoption and performance in their individual service territories, including the size of their respective territories, customer demographics, local markets and pricing, market actors, and electric rates. This knowledge also places the utilities in the best position to determine where efficiencies or benefits can be captured through different types of coordination with other utilities in the state.

Indeed, most of New Jersey's utilities have extensive experience implementing comprehensive EE and PDR programs in other jurisdictions, including coordinating program offerings with other utilities where appropriate. In such cases, the utilities can coordinate on certain aspects of the programs, such as common program design, incentives, eligibility requirements, or implementation vendors. Because of this experience, New Jersey's utilities are strongly positioned to partner together when greater efficiencies and benefits can be captured by doing so. In fact, the New Jersey utilities have had meetings to share their experiences and thoughts regarding program offerings, program design, and specific features that will allow for the successful delivery of programs and provide all customer segments with opportunities to participate. JCP&L looks forward to continuing this work with the other New Jersey utilities when developing and implementing its program offerings.

Finally, as discussed in some more detail below, JCP&L believes that requiring implementation of statewide programs may indeed result in administrative inefficiencies. Many New Jersey utilities have established EE administrative services, support systems, and processes that can be leveraged to capture significant economy of scale benefits. Requiring statewide implementation of programs may inhibit these efficiencies and may result in greater costs to customers.

4. **How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?**

JCP&L Comments:

As mentioned above, the New Jersey utilities have experience running EE and PDR programs in New Jersey as well as other states. For example, JCP&L's four affiliated utilities in Pennsylvania began implementing EE programs in 2009 and PDR programs in 2012. Similarly, JCP&L's three affiliated utilities in Ohio began implementing EE and PDR programs in 2009. And, in Maryland, one of JCP&L's affiliated utilities began implementing EE programs in 2009 as well.

This extensive multi-state experience means that JCP&L has access to already established back-office administrative procedures and systems, and a staff with experience successfully offering comprehensive programs across multiple jurisdictions. Additionally, these prior experiences mean that JCP&L already has access to knowledge about skilled program vendors, which can be used to capture cost savings through volumetric efficiencies and different delivery channels that achieve increased customer participation in a cost-effective manner. Further, JCP&L anticipates continuing its efforts to utilize cross-jurisdictional efficiencies where appropriate. This includes leveraging relationships with third-party vendors that have robust networks of trade partners in multiple states and cross-marketing programs where possible.

In short, JCP&L is committed to providing successful, cost-effective, and reasonably priced EE and PDR programs to its customers by leveraging the procedures, systems, and expert staff already in place due to the implementation of successful programs by its affiliated utilities in other jurisdictions. The Board should provide JCP&L, and the other New Jersey utilities, with the flexibility to implement programs in a manner that will best allow them to do so.

5. **What is the best way to minimize administrative costs and avoid duplicative administrative structures?**

JCP&L Comments:

As detailed above, JCP&L and the other utilities in New Jersey have experience implementing energy efficiency programs both in this state and for their affiliated utilities in other

jurisdictions. As a result, JCP&L and the other utilities have procedures, systems, and staff in place that put them in the best position to deliver cost-effective and successful programs for their customers – which, of course, is the ultimate goal of the Act. While statewide programs may seem to be less administratively burdensome on their face – there would be only one office running programs for the entire state compared to offices at each utility – this benefit is illusory. It is the utilities that have extensive and successful energy efficiency operations already in place. Thus, allowing them to simply leverage and expand existing operations within and into New Jersey, rather than attempting to initiate or expand statewide offerings, will minimize administrative costs and ensure cost-effective energy efficiency programs for customers.

6. **What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?**

JCP&L Comments:

The primary goal of the transition should be to ensure a timely and orderly changeover to utility-run programs. To accomplish this goal, the Board and stakeholders must work together to develop a transition plan that sets forth a clear process prior to the transition taking place. In developing this plan, the Board and stakeholders should consider a staged transition of programs to the utilities – with priority being given to those programs with the potential to provide the greatest benefits to customers. During this process, it will be vital that the Board and stakeholders closely monitor the transition and maintain effective communications to ensure as minimal disruption in program offerings as possible. JCP&L feels confident that these changes can be undertaken in an effective and efficient manner so long as proper plans are in place and stakeholders remain dedicated to working together to guarantee a smooth transition.

7. **What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommended to for sharing that data?**

JCP&L Comments:

The most important consideration when discussing the sharing of customer data is the measures in place to protect that data. As the Board is aware, New Jersey law prohibits the disclosure of confidential customer data to third-parties without the customer's prior written consent. Accordingly, JCP&L has policies and procedures in place to prevent the disclosure of customer data and to further protect that data from inadvertent disclosure beyond that approved by the customer. In the context of these energy efficiency programs, the procedures already in place at JCP&L to prevent unauthorized disclosure should relieve the Board's concerns about utilization of customer data. This is yet another benefit of utility-led programs – the utility can oversee and ensure the proper storage, retention, handling, and transmittal of sensitive customer data while complying with the law and maximizing that data's use for the benefit of customers.

8. **What data, assumptions, methodology, and considerations (e.g. non-energy benefits) should be used to perform cost-benefit analyses?**

JCP&L Comments:

JCP&L recommends that the Board utilize a cost-benefit analysis test that is based on standard industry practice and relies on fair and reasonable estimates of the programs' costs and benefits. More specifically, the Company believes that cost-effectiveness should be determined by comparing the market-based avoided cost of electric supply in the appropriate PJM zone for the kilowatt hours projected to be saved by a program to the program's projected cost.

In general, the Company cautions against making assumptions that exaggerate avoided costs or other benefits in assessing program cost-effectiveness. The goal of a cost-benefit analysis is to monetize the perceived benefits of a program and compare them to the program's costs. To ensure that customers are able to realize economic benefits from the programs in which they participate, however, it is important for the benefits-side of the calculation to be based on avoided costs and other benefits that are reasonable and readily quantifiable. While the Act contemplates the consideration of certain non-energy benefits when performing cost-effectiveness testing, JCP&L believes it is important for the Board to keep in mind that many non-energy benefits are both speculative in nature and difficult to quantify or highly variable. As a result, the Board should be extremely cautious regarding which non-energy benefits it includes, as well as its monetization of such benefits, when performing its cost-benefit analysis of utility programs.

Finally, JCP&L agrees with and supports the Act's mandate that "[t]he methodology, assumptions, and data used to perform the benefit-to-cost analysis shall be based upon publicly available sources and shall be subject to stakeholder review and comment."

9. **What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?**

JCP&L Comments:

N.J.S.A. 48:3-87.9(f)(1) establishes clear guidelines for the membership and role of the Independent Advisory Committee ("IAC"). As that provision indicates, the role of the IAC is to "study the evaluation, measurement, and verification [("EM&V)"] process for energy efficiency and peak demand reduction programs . . . to provide recommendations to the board for improvements to the programs." Thus, the IAC's primary role is to review the EM&V processes in place to measure the effectiveness of the utilities' programs and, based on that review, to make recommendations regarding the programs. As contemplated by the statute, this role can be effectively accomplished through a committee that includes the public utilities, Rate Counsel, and environmental and consumer organizations. Further, as the utilities will have primary

responsibility for implementing the programs being reviewed by this committee, the Board should consider allowing multiple representatives from each utility to serve on the committee.

10. **How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak demand reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?**

JCP&L Comments:

While it is important for the state to capture and quantify all energy efficiency that is occurring, it is also important for the Board to recognize that the utilities will have limited to no control over certain savings that count towards meeting the mandates. As a result, while the utilities are solely responsible for meeting the savings targets set forth in the Act, there will be a tremendous amount of uncertainty regarding the amount of savings that can be counted on from programs that are not implemented by the utilities. Recognizing this, the Board should provide the utilities with increased certainty regarding the amount of energy savings that can be counted on annually from these sources outside of the utilities influence or control.

Providing this increased certainty starts with setting the QPIs applicable to each utility at a reasonable level based on the achievable potential determined by the MPS study completed for each service territory. To do so, the MPS study will need to take into account that at least a portion of the Achievable Potential within each service territory will result from programs or activities that are outside of the utility's control, and, thus, the results of which cannot be relied upon directly by the utility. Further, as the utility's ability to meet its QPIs will be a consideration when determining whether it receives incentives or penalties, the utility's non-participation and inability to control these outcomes should also be taken into account when evaluating utility performance. JCP&L recommends doing this by annually setting a pre-determined amount of energy savings from outside programs that the utilities can count toward meeting its QPIs. This will give the utilities a clear goal that it needs to meet through the implementation of its programs and prevent consequences to utilities from the underperformance of programs that are outside of its control. It is also consistent with the Act's mandate that the Board take into account appropriate factors "to ensure that the public utility's incentives or penalties . . . are based on performance." *See* N.J.S.A. 48:3-87.9(c).

11. **How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?**

JCP&L Comments:

The EPA's National Action Plan for Energy Efficiency, in a publication titled "Aligning Utility Incentives with Investment in Energy Efficiency," discusses three forms of cost recovery

and incentives that are beneficial for assuring proper alignment of utility and customer interests: (1) timely program cost recovery; (2) lost revenue recovery; and (3) performance incentives, such as shared savings mechanisms. The Act also addresses each of these issues and requires the Board to establish mechanisms to address them. *See* N.J.S.A. 48:3-87.9(e).

As mentioned above, JCP&L supports the alignment of utility and customer interests through the use of a mechanism allowing for lost revenue recovery and shared savings, which provides added encouragement for utilities to strive to meet and exceed a percentage of their savings targets. Shared savings mechanisms further support prudent and cost-effective management of programs while maximizing net benefits within budgets. In a typical shared savings mechanism, the utility is allowed to recover a certain percentage of the net benefits realized by customers, with the net benefits being calculated as the difference between the costs avoided by the EE and PDR programs and the utility cost incurred for the programs (often referred to as the Utility Cost Test or "UCT"). By coupling a shared savings mechanism with a PJM revenue sharing mechanism, whereby customers can receive a portion of the revenues from PJM reliability pricing model auction activity from qualified energy efficiency resources, these additional savings present an added "win-win" opportunity for customers, stakeholders, and the utilities.

There are also protections built into most shared savings mechanisms to ensure that the utility only recovers for superior performance. To begin, the utility would only trigger the shared savings incentive if it exceeds a set percentage of its savings target in any given year. The determination whether the utility exceeded the set percentage of its target and the appropriate level of the incentive could be made based on information available in the Company's annual petitions, thus ensuring that the calculation of shared savings is consistent and transparent. In practice, the utility would ask the Board for recovery of shared savings by including within its annual petition evidence demonstrating it exceeded a set percentage of its target and a calculation determining the appropriate amount of shared savings by multiplying a percentage share set by the Board times the actual discounted net benefits of the utility's programs under the UCT. This process allows for transparent reporting of the incentive and ensures that utility and customer interests are aligned.

As it relates to rate design, JCP&L recommends the Board consider adopting a recovery mechanism for EE and PDR programs that consists of a non-bypassable surcharge based on a forward-looking formula that is subsequently reconciled annually based on the programs' costs and revenues from the prior year. This reconciliation can be completed each year through the annual petition contemplated by the Act. As discussed above, the surcharge should allow for the timely recovery of program costs, lost revenues, and performance incentives. By implementing the surcharge in this fashion, the Board can ensure that adequate funds exist to allow the utilities the opportunity to successfully run programs and meet its targets.

JCP&L anticipates applying the following rate designs to recover EE and PDR program-related expenditures. For Service Classifications RS, RT/RGT and GS (which are residential and smaller commercial classes), the rate will be a per kilowatt-hour rate for each rate class. For Service Classifications GST, GP and GT (which are larger commercial and industrial rate classes),

the rate will be a per kilowatt rate for each rate class. For all lighting classes, JCP&L anticipates applying a per fixture rate. These proposed rate designs for each rate class resemble the current distribution rate design for these customers, which is also the basis for the allocation of EE and PDR program-related revenue requirement recovery for each filing period.

Finally, as it pertains to penalties under the Act, the Board should have discretion to determine the appropriate level of a penalty, or whether to assess one at all, taking into account the factors leading to the utility missing its target. As discussed above, the utilities should not be held accountable for the underperformance of programs that are not within their direct control. Again, this is consistent with the Act's mandate that the Board consider appropriate factors to "ensure that the public utilities incentives or penalties . . . are based upon performance." *See* N.J.S.A. 48:3-87.9(c). As such, the Board should have discretion to take factors such as underperformance of outside programs into account when determining whether a penalty should be assessed.

12. **Under N.J.S.A. 48:3-88(3)(e), each electric and gas utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?**

JCP&L Comments:

FirstEnergy has extensive experience with annual compliance and cost recovery petitions for EE and PDR programs across numerous states including Ohio, Pennsylvania, Maryland, and West Virginia. While reporting formats, periodicity and requirements do vary slightly by jurisdiction, most reports will contain the following key elements:

- Annualized kWh Energy Savings (ex ante);
- Annualized kW Coincident PDR (ex ante);
- Lifetime kWh Energy Savings (ex ante);
- kWh Realization Rate (in utility's independent evaluator report);
- kW Realization Rate (in utility's independent evaluator report);
- Program Participation – with state definition of what characterizes a participant;
- Program Costs and Cost Elements;
- Cost Effectiveness Test scores (in utility's independent evaluator report);
- First Year Acquisition Cost (Program costs/Annualized Ex Ante kWh Energy Savings); and
- Lifetime Acquisition Cost (Program costs/Lifetime Ex Ante kWh Energy Savings).

While other potential elements could be included in standardized reporting, FirstEnergy's experience is that the above metrics provide a broad base from which all parties can view program efficacy. When excessive reporting elements have been required, or the requested data has been

sliced into multiple overlapping views (e.g. numerous contemporaneous time periods such as quarter, year to date, portfolio to date; or simultaneous consumer and wholesale-level impacts), administrative inefficiencies result and interested parties lose a straightforward common language to discuss program performance and are often too mired in details that have little bearing on program success. JCP&L recommends the above elements be adopted as initial reporting requirements, with future reporting enhancements expanded as needs arise.

JCP&L again thanks the Board for the opportunity to provide comments on these important issues. The Company looks forward to continuing its work with the Board and Board Staff to ensure that New Jersey's implementation of these programs occurs in the most efficient and effective manner possible for the benefit of all stakeholders. If you have any questions or if you would like to further discuss JCP&L's above comments, please do not hesitate to contact me.

Very truly yours,

Joshua R. Eckert | KBW

Joshua R. Eckert
Counsel for Jersey Central Power & Light Company

State of New Jersey
Board of Public Utilities
44 South Clinton Ave, 3rd Floor, suite 314
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Trenton, New Jersey 08625-0350

**RE: THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS**

Dear Secretary Camacho-Welch:

Jersey Renews is pleased to submit these comments on behalf of its member organizations and the undersigned to the Board of Public Utilities ("BPU") in the above reference proceeding.

Sincerely,

Norah Langweiler, Jersey Renews
Debra Coyle McFadden, New Jersey Work Environment Council
Liz Cohen, Reform Jewish Voice of New Jersey
David Hughes, Rutgers American Association of University Professor -American Federation of Teachers
Ray Greaves, Amalgamated Transit Union New Jersey State Council
David Weiner, Communications Workers of America Local 1081
Carol Gay, New Jersey State Industrial Union Council
Walt McRee, Banking on New Jersey
Nancy Griffeth, Unitarian Universalists Faith Action
Lynn Perry, Care of Creation Task Group, New Jersey Synod of the Evangelical Lutheran Church in America
Richard Lawton, New Jersey Sustainable Business
Michael Rollins, New Jersey Education Association
Imam Saffet A. Catovic, Green Muslims of New Jersey
Barbara Rosen, Health Professionals and Allied Employees
Peter Rose, Isles, Inc.

Energy efficiency jobs are directly tied to strong energy efficiency policies. Over the last decade, New Jersey has dropped 10 spots in the American Council for an Energy-Efficient Economy's (ACEEE) energy efficiency scorecard. Nearby states like Pennsylvania, Massachusetts, and New York have increased investment in energy efficiency which has resulted in job growth to 65,000, 85,000, and 110,000 respectively. In designing its program, NJ should adopt and improve the best practices from other states to regain its position as a national leader in energy efficiency and provide the backbone for its clean energy economy.

Traditional utility ratemaking models reward utilities for selling more electricity which is poorly suited to accommodate an energy efficient, clean energy economy wherein customers use less energy overall. New Jersey should require a 30% reduction of 2015 levels for electric and natural gas usage by 2030 with clear, measurable interim benchmarks.

New Jersey should support policies and measures that expand the use of industrial energy efficiency technologies that will serve to reduce greenhouse gas emissions, maximize efficiency in some of the most energy intensive facilities, reduce waste, and help industrial facilities be more competitive nationally and globally.

The new programs established under the Clean Energy Act must create a partnership between utilities and customers to remove barriers to energy efficiency interventions, provide incentives for performance that go beyond mandates, and achieve robust energy efficiency savings. Access to energy data is the foundation for any real building efficiency progress. Residents and building owners need simple access to understandable and reliable energy information. The NJBPU should give building owners and managers electronic access to monthly, whole-building aggregated energy consumption data with reasonable confidentiality protections for tenants.

Stakeholders must have an active role in the design phase of the program through public hearings and opportunities for discussion between stakeholders. The state should convene an energy efficiency task force made of building industry professionals and stakeholders to chart a comprehensive and long-term path to reducing pollution in the building sector. Once a program has been established, key stakeholders should convene an advisory council on a regular basis to review program metrics and make recommendations for improvement.

High performance green building standards in new and existing state construction ensure that the state leads by example. New Jersey should improve green building standards by examining and updating building envelope and efficiency codes. The state should provide funding to qualified labor-management training providers to train employees in operations and maintenance to optimize building performance including the implementation of green cleaning and renewable energy measures in public and commercial buildings, particularly schools. New Jersey should offer free benchmarking for hospitals, municipalities, public schools, universities, multifamily units, retail, and other sectors which allows for greater insights into the benefits of energy efficiency.

Finally, New Jersey needs to invest in building performance departments. Local building departments must be given the tools and resources they need to implement New Jersey's building energy standards. Current policy rewards the exceeding of mandatory code, but does not address

the larger problems of overall compliance and older buildings that lag far behind current standards. To achieve state goals for efficiency and energy independence the state must prioritize strong compliance for all buildings with the state's energy code and consider incentivizing up-to-code improvements for buildings designed and built to lower standards.

Energy efficiency is the lowest cost energy-saving tactic for New Jersey residents and businesses that saves money on energy bills and decreases greenhouse gas emissions. Across the country cost-effective investments in EE are consistently shown to lower energy costs for customers who participate in EE programs and decrease utility costs for all ratepayers. Increasing energy efficiency also lowers greenhouse gas emissions and, along with investments in clean energy, can improve grid resilience.

February 15, 2019

Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 3 Floor, Suite 314, CN 350
Trenton, New Jersey 08625

**Subject:** In the Matter of the Implementation of P.L. 2018, C. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs - Docket No. QO19010040

Dear Ms. Camacho-Welch,

This transmittal is in response your January 22, 2019, Public Notice calling for written comments regarding the matter identified above.

Lime Energy is known here in New Jersey, and nationally, as leader in commercial energy efficiency delivery; we specialize in serving the hardest to reach small business customers, which struggle to take advantage of energy saving opportunities. Lime operates out of Newark, New Jersey. Late last year, we became part of the Willdan family of companies, joining a firm with other affiliates operating in Edison with strong commercial efficiency capabilities. Together, Willdan and Lime employ 110 people in New Jersey and our business creates thousands more subcontractor and other supply chain jobs in the State.

On behalf of Lime, I testified at the February 1, 2019, hearing, and the following summary reiterates a handful of the key themes of my remarks.

1. **This is a singular moment for energy efficiency in New Jersey.**
   Last year's clean energy legislation, combined with the leadership of Governor Murphy and the emergence of a reinvigorated Board of Public Utilities, has led to a special moment for energy efficiency in New Jersey. To seize the economic and environmental opportunity in front of us, New Jersey needs a paradigm shift in its demand-side management programs. If achieved, energy efficiency action will skyrocket as will the benefits from consumer-savings, job creation, clean air, and climate mitigation that will come to all of us.

2. **Swift, decisive action by the Board of Public Utilities is critical.**
   The set of policies is developed by the May deadline will need to evolve over time, but the initial framework, targets, incentives and penalties need to be implemented on an expedited basis. Clear signals to New Jersey's energy services market actors must be sent. Without immediate and decisive Board action, the national and local energy services industry, which is anticipating mobilizing in New Jersey in the coming months, will invest elsewhere. Existing providers and contractors will be forced to plan a right-sizing of workforces in the state. Certainty and clarity in the marketplace are central to creating and sustaining the scale needed to achieve the ambitious goals laid out in the legislation.

3. **Decoupling and utility earnings opportunities tied to performance toward savings targets are fundamentally important.**
   Utilities in the state need to be moved away from operating a business driven on the quantity of electricity or gas sold. Under a decoupling design, utility revenue can be based on desired policy outcomes such as a reliability, efficiency, and ensuring a lowest-cost, clean energy system. In a decoupled environment, customers can continue to pay for their service based on the amount of energy they consume, so the incentive to use less remains. Furthermore, we need to compensate and reward utilities for helping their customers save energy. To those who say that utilities need not earn returns on energy efficiency, I would respond by asking: Would do we really want utilities to base their returns to shareholders on gas and electric throughput and sales (current circumstance)? Or, instead would we prefer to incent utilities to: help customers invest in their homes and businesses; achieve long term reductions in their energy bills; while lowering system peak requirements and reducing greenhouse gas emissions? Of course, the latter is the best of the two options. Other submittals you will have received by today will delve into the technicalities, trends, and benefits of alterative rate design but – suffice to say – decoupling and utility incentives (plus cost recovery) are foundational to the best energy efficiency policies in leading states.

4. **Utilities are best suited to administer energy efficiency programs to expand customer participation beyond current levels.**
   Trust is a key driver to energy efficiency program participation, and customers are accustomed to the utility coming into their homes and businesses to read a meter or make a repair. It has been proven time and again, and it has been our experience, that customers are more likely trust an energy efficiency offer presented as if it is coming from the utility. The most successful programs Lime operates are the ones in which we can "white label" our offerings, presenting the utility brand on our marketing material, our ID badges, and even the clothing we wear. Furthermore, customer data is paramount for EE marketing and the utilities have all it. We mine it, segment it, and analyze it to develop propensity models to target customers. These data-driven tactics drive down customer acquisition costs and improve program performance and cost effectiveness.

5. **Each utility should target hard-to-reach small and mid-sized businesses.**
   To the extent that statewide standards are needed, equity must be protected and underserved residential and commercial customers should be targeted. Lime specializes in serving the hardest to reach small business customers, which struggle to take advantage of energy saving opportunities. Lime has operated in the Garden State since 2010 and has been the BPU Direct Install Program's most productive participating contractor since its start, performing over 2,700 energy efficiency retrofits for smaller commercial customers. By contrast, over the same period Lime has operated in New Jersey, we have completed 13,000 small commercial retrofits in North Carolina, 39,000 in upstate New York, and 60,000 in Los Angeles, California. We as a state can do better, and the utility-driven programs Lime implements in other jurisdictions reach many more underserved customers.

6. **Administrative costs can be managed by utilities when program deployments are scaled, and when third-party implementers' compensation is structured on a pay-for-performance basis.**
   When utilities deploy at scale, they dispel concerns over administrative costs in the operation of efficiency programs. Each utility will have some fixed costs at the start of programs that will smooth out as they ramp up. Once a program reaches its peak run rate, overhead becomes a smaller portion of total costs. Right now, with New Jersey programs operating at one-fourth the size of the new target rate, worry about overhead costs is understandable. In addition, administrative costs are kept low by engaging third-party providers and paying exclusively for energy savings delivered. Some programs pay their providers management fees or pay by the transaction or by the measure. Lime Energy prefers to be paid on a performance basis for verified savings installed, which provides greater value to utilities and ratepayers alike.

7. **The time for advanced meter infrastructure in New Jersey has arrived.**
   The "Internet of Energy," as it is sometimes called, is nearly here. Homes and businesses are becoming smart buildings, and smart grid switches and sensors are becoming commonplace. Advanced metering is critical to connect the two – though its deployment takes time. We must begin to authorize utilities to introduce smart meters. When advanced meter infrastructure is installed, the market will be able to reach what is becoming known as "metered efficiency" – a trend emerging in utility programs in California, New York, and elsewhere. Metered efficiency holds the promise of attaining energy efficiency's full potential as the most cost-effective clean energy resource.

Lime Energy sincerely appreciates the opportunity to have testified earlier this month and to have submitted these written comments today. We look forward to continued participation in stakeholder discussions toward the advancement of New Jersey's clean energy economy.

Sincerely,

Lloyd Kass
Senior Vice President

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PREPARED STATEMENT BY FRANKLIN NEUBAUER AT NEW JERSEY

BPU STAKEHOLDERS MEETING, FEBRUARY 1, 2019

Good morning, I am Franklin Neubauer of Core Metrics. I am a consultant in energy efficiency planning and energy modeling. My comments today are responses to questions 8 and 10, which deal with cost-benefit analysis, and the calculation of energy savings.

**Question 8:** Expected updates to New Jersey's cost-benefit analysis - that is its methodology, assumptions, and inclusion of non-energy benefits - will rely on the National Standard Practice Manual (or NSPM), and consultants who will interpret NSPM for the BPU. NSPM also has many supporting documents. One thing cost-benefit analysis can tell us is whether a program or project is cost-effective. Saying energy efficiency is cost-effective is shorthand for saying that the benefits outweigh the costs. States develop cost-effectiveness-practices to address how they will measure energy efficiency's costs, and how they will value benefits. NSPM is a guide for reforming the cost-benefit analysis that states do. It addresses existing problems in how states test costs and benefits, and would expand benefits to count environmental factors, public health impacts, economic development impacts and other factors that the Murphy Administration finds appropriate. I have extensive experience measuring cost-effectiveness including the Societal Cost Test, which a couple other speakers have mentioned, and I support most of NSPM's reforms. But let me be clear about a few thing that updates to cost-benefit analysis will not do.

Putting a higher value on energy efficiency, for example by measuring non-energy benefits, does not necessarily lead to more energy savings. The opposite effect can occur due to program budgets. That is because more costly measures become eligible for incentives when energy efficiency programs count more benefits. More costly energy savings in utility portfolios means

that the average cost of energy savings goes up after you have reformed cost-benefit analysis, and the budget means that fewer homes and businesses will be served at a given budget level. Obviously, budgets will be much higher than they are now, but at a given budget level because the cost per unit goes up you serve less homes and businesses.

A common fix for this problem is for states to impose what is called a "secondary test" on each utility's portfolio of programs in order to keep a lid on utility costs. NSPM's approach to updating cost-benefit analysis recognizes situations when a secondary test is helpful, and leading states have done this before. New Jersey needs a secondary cost-effectiveness test to protect ratepayers and limit utility costs. I believe New Jersey's utilities and Rate Counsel will come to recognize why this is important. I am inclined to recommend the Utility Cost Test as the secondary test, but other possibilities may be worth investigating.

Cost-benefit analysis looks at programs or projects in isolation, and reforms recommended by NSPM are limited by its narrow focus on engineering economics instead of other methods of economic analysis. NSPM spends little time addressing budget impacts and rate impacts. NSPM pays careful attention to marginal costs but it neglects valuable data on the average cost of energy savings. So the expert guidance New Jersey will rely on for cost-benefit analysis has limitations, and NSPM should not be considered best practices. For New Jersey to implement NSPM's reforms to cost-benefit analysis, it is important to understand issues NSPM doesn't address. For those issues, an Integrated Resource Planning approach can help. At a minimum, it is important to anticipate consequences of updated cost-benefit tests. Those consequences can be quantified using market potential data, models and forecasting techniques, which I used in the Pacific Northwest. We must control cost and rate impacts intelligently because we will be saving energy at a much faster rate than at present.

I have submitted longer comments on cost-effectiveness in my May 31 response to TRC's Strategic Plan. I have also suggested that the BPU update the interest rate that it uses in some of its cost-effectiveness tests.

**Question 10** asks how savings from different sources should be factored into savings targets and incentives. I am not going to propose specific calculations, not yet anyway, but I know what a useful answer would include.

Savings estimates are based on many assumptions including measure lifetimes, the persistence of savings, building occupancy and other factors. Those estimates will affect the utilities' targets. Key assumptions that form the basis for savings estimates should be explicit and consistent statewide, so that the process provides transparency. Northeast Energy Efficiency Partnerships, or NEEP, may be able to recommend standards for reporting savings, which would be preferable to using company-specific practices or proprietary practices.

Current systems for reporting energy savings in New Jersey serve the needs of insiders but not the needs of other stakeholders. The state needs reporting that is more widely accessible to the public and tracks long-term savings, providing savings totals for all energy efficiency efforts in New Jersey.

Remember that energy efficiency has no meter on it. Important baselines used in savings calculations should be unambiguous and readily understandable to the general public. The lack of a clear baseline in the 2011 Energy Master Plan set back progress in energy efficiency for many years. I hope New Jersey will not allow that to happen again. Thank you

State of New Jersey
Board of Public Utilities
44 South Clinton Ave, 3rd Floor, suite 314

**RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

Dear Board Secretary Camacho-Welch:

As diverse businesses including manufacturers, service providers, trade associations, and companies with significant presence, investments, and interests in New Jersey, we strongly support energy efficiency and demand response as important components of an effective energy plan for the state.

All New Jersey consumers and businesses benefit when we eliminate energy waste. By investing in energy efficiency and demand response, we can reduce total energy costs for customers; mitigate the impact of fuel and electricity price increases; alleviate stress on the electricity grid; reduce carbon emissions and air pollution; and build a more affordable, reliable energy system for the businesses and citizens of the state.

Energy efficiency programs and investments are the lowest-cost energy resources available and deliver significant value. For example, according to 2015 Energy Master Plan, every dollar invested in efficiency programs from 2003-2010 saved New Jersey residents and businesses between $1.80 - $4.29 in electric power costs.[1] All New Jersey consumers and businesses experienced these benefits - whether or not they participated directly in programs. For New Jersey consumers and businesses, electricity bills would have been higher if other more expensive energy resources were pursued. Consequently, energy efficiency helps to keep costs under control. These electricity savings compound across the supply chain and free-up significant capital that can be reinvested into operations, research and development, employees, and communities.

For these reasons, we recognize and applaud New Jersey for enacting the *Clean Energy Act* and establishing ambitious goals for energy efficiency investment. We also appreciate the New Jersey Board of Public Utilities (BPU) Staff for acting expeditiously to solicit stakeholder input on the *Clean Energy Act*'s implementation.

Below we offer responses to several questions posed by the Board Staff.

[1] State of New Jersey Board of Public Utilities, In the Matter of the Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for the Fiscal Year 2016 Clean Energy Program, June 17, 2015, https://www.state.nj.us/bpu/pdf/boardorders/2015/20150617/6-17-15-8E.pdf

**Question 1 - What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

We recommend the following best practices:

- Efficiency programs should be comprehensive to maximize savings and benefits for customers, focused on meeting customer needs, organized around common market transactions and opportunities (e.g., equipment replacement, renovation and remodeling, retrofit, new construction, retail purchases, behavioral energy efficiency, etc.) to leverage customer actions, and easy and engaging to maximize customer participation.[2]
- Program portfolios should ensure that all customer segments have an opportunity to participate in and benefit from the programs.
- Utility rate design should be consistent with and support efficiency investment. Monthly fixed fees or basic service charges should be minimized; and strong price signals that encourage energy savings should be sent, including through consumer-friendly time-of-use rates.
- Cost-effectiveness evaluations of energy efficiency should be calculated at the portfolio- or sector- level to ensure comprehensive program offerings. The full valuation of energy efficiency benefits — including non-energy benefits, emissions impacts, and energy efficiency's role as a peak resource and a transmission and distribution resource — should be considered.
- As appropriate, utility financial interests should be aligned with efficiency investment and New Jersey's public policy goals by: (1) Ensuring timely recovery of energy efficiency program costs; (2) Providing opportunities to earn financial incentives based on the effective management and performance of cost-effective programs; and (3) Reducing the risk of utility lost revenues through full revenue decoupling.

**Question 2 - How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?**

To realize the benefits of and lead on energy efficiency, New Jersey must understand and capitalize on its investment opportunity. Potential studies can provide insight in this area, but the common limitations should be acknowledged and proactively addressed. Common limitations include the failure to incorporate important savings opportunities (e.g. emerging technologies and plug loads), the failure to account for scheduled and likely increases in codes and standards or the increasing efficiency of advanced technologies, and under-estimation of retrofit opportunities in existing buildings. These studies may also employ outdated analytical methods or antiquated program designs which limits the investment opportunity and savings identified. For these reasons, savings projections from potential studies should not necessarily limit efficiency investment levels. As a best practice, potential study results should always be benchmarked against the savings levels actually being attained in leading jurisdictions, including from those states that are delivering results above and beyond what potential studies have commonly found (for example, states with annual savings at or above 2-3% of retail energy sales).

**Question 6 - What considerations should be made during a transition period that would result in as few disruptions as possible to the marketplace?**

[2] For example, the National Association of Energy Service Companies (NAESCO) recommends that the BPU consider reviving its 1990s Standard Offer program, which delivered an "Energy Efficiency Power Plant" of nearly 300MW. Similar programs are now being offered in California (the Local Capacity Requirements procurements) and in New York (ConEd's targeted DSM program). These programs allow third parties to compete to provide deep retrofits through technology-neutral projects that fit the requirements of individual customers.

Abrupt stops and starts of energy efficiency programs introduce uncertainties that make it harder for businesses to make long-term investment plans and workforce decisions and track and understand what programs and services are available. Additionally, any reduction in energy efficiency program investment means that New Jersey would forgo its least expensive energy option and instead pay for more expensive alternatives. As a result, *all* New Jersey customers would pay more. Steps should be taken to ensure the continuity of energy programs from year-to-year through multi-year planning. Additionally, as new energy efficiency administrative models are explored as a result of the *Clean Energy Act*, it is critical that steps are taken to ensure that new utility-proposed programs and Office of Clean Energy (OCE) programs are consistent, complementary, and maintain a strong customer-centric approach. Steps should also be taken to ensure that funds collected for energy efficiency are preserved and not diverted for unrelated purposes.

**Question 8 - What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?**

As recommended above, cost-effectiveness evaluations of energy efficiency should be calculated at the portfolio- or sector- level to ensure comprehensive program offerings. The full valuation of energy efficiency benefits — including non-energy benefits, emissions impacts, and energy efficiency's role as a peak resource and a transmission and distribution resource — should be considered.

**Question 9 - What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?**

Transparent, robust stakeholder boards or councils that enable diverse perspectives to provide input and direction on the design and implementation of utility energy efficiency programs and plans have proven effective in many states including among the nation's leaders: Massachusetts, Rhode Island, and Connecticut. New Jersey's Advisory Committee should be informed by these models. It should also include public agency representatives, stakeholder representatives, and representatives from each of the ratepayer classes the fund and benefit from programs (i.e. low-income, residential, commercial, and industrial customers). Finally, the Advisory Committee should review draft and final plans prior to BPU submittal and should have the responsibility to review performance reports at least quarterly as well as annually.

**Question 11 - How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?**

Providing opportunities to earn financial incentives for the effective management and delivery of cost-effective programs is a proven method to ensure results. A majority of states offer performance incentives for program administrators, and leading states like Massachusetts and Rhode Island have developed multi-part incentives to target multiple outcomes. The performance incentive mechanisms often focus on two primary objectives: encouraging savings and benefits, and encouraging value (net benefits) and cost-efficiency. As a best practice, performance incentives should:

- Encourage the delivery of cost-effective energy efficiency;
- Be based on clearly-defined goals and activities that are sufficiently monitored, quantified, and verified;
- Be available only for those activities for which the recipient plays a distinct and clear role in bringing about the desired outcome;
- Avoid perverse incentives; and

- Be set at an amount that is effective yet reasonable while balancing and meeting the aforementioned principles, and recognizing that it is customers who pay for the performance incentives.

Thank you for the opportunity to provide these comments. We welcome further discussion on how we can support your efforts to implement the *Clean Energy Act* for the state's benefit. We stand ready to work with you and would welcome the opportunity to meet with you and your staff.

Sincerely,

Alliance for Industrial Efficiency

Ameresco, Inc.

Bidgely

CMC

JLL

MaGrann Associates

Mars, Incorporated

National Association of Energy Service Companies (NAESCO)

Polyisocyanurate Insulation Manufacturers Association (PIMA)

Performance Systems Development

Schneider Electric

Sealed

Warren Energy Engineering, LLC.

*For additional information about this letter please contact Ellen Zuckerman with Schlegel & Associates (ezuckerman@schlegelassociates.com or 609-610-2989) or Eric Miller with the Energy Efficiency Alliance of New Jersey (973-495-0263).*

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February 15, 2019

**VIA ELECTRONIC FILING**

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Board of Public Utilities
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**Re: Proposed NJCEP FY 2019 Programs**

Dear Secretary Camacho-Welch:

Please accept these comments on behalf of the National Fuel Cell Research Center, in response to the New Jersey Board of Public Utilities Notices requesting comments on the implementation of new energy efficiency and peak demand reduction programs.

Respectfully Submitted,
__/s/___Jack Brouwer____
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**NEW JERSEY BOARD OF PUBLIC UTILITIES**

**OFFICE OF CLEAN ENERGY**

**IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, C. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040**

# Comments of the National Fuel Cell Research Center

## I. Introduction and Background

The National Fuel Cell Research Center ("NFCRC") appreciates the opportunity to submit comments on the implementation of energy efficiency and demand reduction programs to the New Jersey Board of Public Utilities (BPU).

The NFCRC facilitates and accelerates the development and deployment of fuel cell systems; promotes strategic alliances to address the market challenges associated with the installation and integration of fuel cell systems; and educates and develops resources for global distributed generation and combined heat and power (CHP) stakeholders.

Large stationary fuel cells are today providing over 400 MW of clean, stable, continuous and dispatchable power and heat in New Jersey and across the U.S. in microgrids and at wastewater treatment plants, food and beverage plants, grocery stores, office buildings, telecommunication hubs, data centers, retail stores, universities, hospitals, hotels, government facilities, and other applications. Additionally, these highly efficient CHP and all-electric fuel cell systems have been successfully operating as part of the New Jersey Clean Energy Program (NJCEP). The Fuel Cell program in the Distributed Energy Resources segment of the NJCEP has resulted in the successful deployment of over nine megawatts (MW) of fuel cell generation systems in New Jersey. These clean, non-combustion systems have been verified to be operating as expected, with very high efficiency, high capacity factor, and large emissions reduction, while also providing resilient backup power during grid outages.

On the utility side of the meter, large-scale fuel cell systems are creating grid support solutions, where electric transmission and distribution systems are constrained, or where increased reliability, resiliency and back-up power is desired. Examples range from a 15MW system in Connecticut, to a 30MW system in Delaware, to a 59MW system in Hwasung City, Korea. These resources are providing clean, 24/7, power generation to complement the increasing deployment of intermittent solar and wind resources, supporting integration of more renewable power and increasing grid reliability. They are also creating resiliency in locations where it is most needed and space is constrained.

The NFCRC recommends that the BPU consider the additional benefits that can be achieved by the programs within the portfolio of energy efficiency and demand reduction. The benefits include resiliency, decreased transmission and distribution costs, criteria pollutant and greenhouse gas emissions reductions, air quality and performance assurance.

## II. Comments on Program Implementation

Herein the NFCRC provides responses to several of the questions posed by the BPU, focused on distributed energy resources (DER).

***1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?***

New Jersey has taken steps to develop a Clean Energy Program to encourage the use of new generation, efficiency measures, and storage technologies. The next generation of this program should incorporate mechanisms to allow eligibility of clean energy projects based upon desired attributes and cost-effectiveness in the short-term. Future DER incentives should be compensated based upon the operation and actual amount of energy produced (accounting for capacity factor) by the generation systems, rather than an up-front capacity incentive. By paying for the actual energy and actual benefits (including air quality) delivered by clean energy systems, the State can guarantee the best use of program and ratepayer funds. As examples,

Connecticut[1] and New York[2] have implemented performance-based clean energy incentives to ensure continued operation and payback from state and ratepayer clean energy investments. This could include BPU recognition of fuel cell systems as a Class 1 resource, as currently authorized in New Jersey by statute.

In other states with programs that support clean energy and fuel cells, the incentive amount for each project is determined not by Staff selection, but rather via a competitive process, ensuring that projects do not receive more funding than absolutely necessary to achieve program objectives. The New York Clean Energy Standard program is an example of this. The New York program facilitates the installation of utility-scale projects to maximize economies of scale and environmental impact. The Connecticut Low Emission Energy Certificate and New York programs, and additionally the California Self-Generation Incentive Program, are all programs that pay based on the actual system operation using meters to measure and making payments contingent upon a specified minimum level of operational capacity – while minimizing use of funds for non-performing projects.

With respect to demand reduction, typically net peak demand in California, and likely in New Jersey, is in the evening, especially since solar PV has become so popular. Solar power is only available in the middle of the day and is significantly reducing net demand in the middle of the day. Because solar power is not available in the evening, peak power demands are tending to be focused in the evening hours with very significant power ramping and power generation required. Many people refer to this type of demand curve as a "duck curve." Fuel cells can ramp up to produce more power in the evening and can operate continuously through the evening, during this peak demand period. Fuel cells can also be dispatched to preferentially operate (e.g., operate at part load when solar PV is available) or wholly operate only during peak demand periods (e.g., operate at full power when solar PV is not available) with proper rate structures that could pay for such peak demand reduction services. This directly addresses the demand reduction issues created by the proliferation of PV.

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[1] Connecticut Department of Environmental Protection Low and Zero Emissions Renewable Energy Credit Program (LREC/ZREC) available at: https://www.ct.gov/deep/cwp/view.asp?a=2715&q=553942&deepNav_GID=1626

[2] New York State Energy Research and Development Authority, *Stationary Fuel Cell Program Opportunity Notice 3841* available at: https://portal.nyserda.ny.gov/CORE_Solicitation_Detail_Page?SolicitationId=a0rt000000FmWFdAAN

***2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?***

In the 2018 changes to the Clean Energy Program Protocols[3], the BPU recommended efficiency requirement would be the most stringent in the country, and could prohibit clean, GHG-reducing and criteria air pollutant reducing projects from moving forward in New Jersey. Evolving from combustion to non-combustion generation sources will concretely help New Jersey and the BPU to achieve its objectives. Fuel cells are non-combustion energy systems that produce (1) lower criteria pollutant emissions than all other CHP systems, [4,5,6] and (2) higher electrical efficiency than all other CHP systems. [7]

The 2018 changes to the Clean Energy Program efficiency standard and protocol – how generation systems are measured against efficiency targets - reflect subjective standards and the NFCRC recommends using a process that accounts for different operations and attributes of different DER. The State should recognize that simply meeting an efficiency threshold does not signify that a DER is clean or good for consumers. The BPU Order requesting comments notes that the law requires the BPU to "establish reasonably achievable targets" for efficiency and demand response across BPU programs. The NFCRC respectfully requests that the BPU consider efficiency levels of 50-55% HHV in conjunction with the other beneficial attributes of clean DER, such as criteria pollutant and greenhouse gas emissions reductions (compared to the grid) and higher capacity factors (compared to intermittent renewables).

Projects receiving state incentives should value broader impacts beyond electrical efficiency that include, for example, reasonably high capacity factors and product utilization (both heat and power), resiliency, grid benefits, and air quality and environmental benefits. A crosscutting protocol for evaluating projects would be appropriate, as recommended by the National Renewable Energy Laboratory to:

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[3] New Jersey's Clean Energy Program Protocols to Measure Resource Savings, Revisions to FY2016 Protocols, June 22, 2018.

[4] California Energy Commission, CEC-500-2011-042, Final Report, National Fuel Cell Research Center, August 2011, available on-line at: http://www.energy.ca.gov/2011publications/CEC-500-2011-042/CEC-500-2011-042.pdf

[5] Y Yi, VG McDonell, J Brouwer, M Fujiwara, M Adachi, Emissions sensors for high temperature fuel cell applications, IEEE Transactions – Sensors Conference, 2005.

[6] Y Yi, A Rao, J Brouwer, S Samuelsen, Ammonia as a Contaminant in the Performance of an Integrated SOFC Reformer System, ASME Paper FC2006-97037, June, 2006.

[7] Mac Kinnon, Michael A., Brouwer, Jacob, and Samuelsen, Scott, The role of natural gas and its infrastructure in mitigating greenhouse gas emissions, improving regional air quality, and renewable resource integration, Progress in Energy and Combustion Science, Volume 64, pages 62 – 92, 2018.

"…examine the energy impacts at the source of the energy supply (beyond the customer boundary) or the environmental impacts (e.g., greenhouse gas emissions or criteria air pollutant emissions) resulting from CHP systems. Similarly, although CHP systems are a valuable component of the electricity system, it is also beyond the scope of this protocol to provide a means for calculating net electricity system efficiencies or examining the system-wide benefits such as improved reliability or resiliency that CHP may provide to the grid. Because environmental and systemwide electricity impacts can result from a wide variety of energy measures and not only CHP systems, it is appropriate to treat these impacts through a crosscutting protocol."[8]

An appropriate cross-cutting protocol to employ would be the one utilized by the federal Environmental Protection Agency (EPA) entitled "Methods for Calculating CHP Efficiency."[9] This EPA guidance recommends that CHP be compared to all-electric distributed generation using the "effective electric efficiency" metric instead of "total system efficiency." The EPA notes that "[e]ffective electric efficiency accounts for the multiple outputs of CHP and allows for a direct comparison of CHP and conventional electricity production by crediting that portion of the CHP system's fuel input allocated to thermal output." The World Resources Institute, and the states of California, New York, Massachusetts, Maryland, and others also recognize the need to include these impacts. Making a change to the Protocols to recognize these impacts would be straightforward, as the Protocols adopted by the Order already correctly contain the data and procedures necessary for this consideration in the emissions reduction calculation presented on page 152.[10]

The NFCRC suggests that the BPU use measured data to determine both the capacity factors and observed efficiencies (electric and heat) to measure energy savings and the avoided emissions, for all of the technologies that are supported by the Program. Fuel cells tend to have

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[8] National Renewable Energy Laboratory, Chapter 23: *Combined Heat and Power Evaluation Protocol, The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures, Section 1.2, Topics Not Covered by This Proposal*, at 2. Available at: www.nrel.gov/publications

[9] US Environmental Protection Agency, Combined Heat and Power Partnership, *Methods for Calculating CHP Efficiency*. Available at: https://www.epa.gov/chp/methods-calculating-efficiency

[10] New Jersey Clean Energy Program Draft Protocols, May 10, 2018. Available at: http://www.njcleanenergy.com/files/file/public_comments/FY18/NJCEP%20Protocols%20to%20Measure%20Resource%20Savings%20FY19.pdf

very high capacity factors compared to other DER which leads to a greater potential for energy savings and emissions reductions.

Additionally, Section 15.1.2 (page 80) of the 2018 Clean Energy Program Strategic Plan suggests that commercial and industrial utility customers who are paying into the Societal Benefits Fund have large, consistent thermal loads. Fuel cell industry experience shows that this customer base is limited and that the majority of New Jersey potential customers do not have matching thermal and electric loads. Thus, systems that can operate to produce electricity with high efficiency, such as fuel cells, or which produce only electricity at high efficiency should be included in the program.

Note that the explicit determination of a capacity factor is critical and essential to objectively determine performance, because a system operating at a higher capacity factor will achieve larger energy savings and avoided emissions in direct proportion to the capacity factor. The adoption of a capacity factor in the metric would also help assure that only systems that are consistently operating well are compensated for their operation.

***3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?***

Both behind-the-meter and utility-scale DER should serve public and private sector markets in BPU efficiency programs. Critical infrastructure (microgrids, hospitals, data centers, banking, grocery stores, telecommunications equipment, emergency and shelter facilities) and other markets with a need for resiliency should receive an additional incentive to encourage their use of clean energy systems capable of providing backup power.

The private sector plays an important leadership role in advancing DER to meet both efficiency and environmental goals. While New Jersey can lead by providing information and education on technology alternatives, the private sector is often a first-mover in technology adoption. The private sector also owns much of the critical infrastructure in New Jersey with the associated need for resiliency to maintain essential services such as banking, communications, hospitals, data centers, and food and water resources. The State should employ policies that facilitate the adoption and use of clean power technologies such as fuel cells by the private sector. In addition, the State should encourage DER adoption by state facilities, and by utilities

that can own such assets and avert otherwise costly upgrades to their transmission and distribution systems.

DER that emit criteria pollutants have the potential to introduce new sources of emissions into urban airsheds with large populations and thereby cause risks to human health and environmental quality. Many areas of New Jersey currently suffer from poor air quality and face major challenges in achieving clean air for the many citizens that live and work within these areas. This is particularly true for low income communities that are often disproportionately burdened by air pollution – these markets should be included and preferred in New Jersey's statewide approach. Therefore, DER such as fuel cells that provide clean, efficient energy conversion and that also produce a wide range of environmental quality, and economic benefits for many different industries and applications should be preferentially adopted because of the significant value they provide to the State and local communities.

Additionally, all DER that reduces GHG emissions and criteria air pollutants should be preferred and eligible for net metering. For New Jersey to benefit from fuel cell systems numerous energy and environmental attributes, non-combustion fuel cell systems must be eligible for net metering – when a behind-the-meter customer can export to the grid and receive a retail credit on their electric bill for the power exported, reconciled annually. Clean DER, like fuel cells systems, should be fairly compensated for the actual energy and actual benefits (including air quality) delivered by all clean energy systems both behind-the-meter and exported to the grid. Note that these benefits can be provided by fuel cell systems when the grid needs them the most; that is, when solar and wind power are not available.

Ideally, these clean DER would also receive parity as a Class I resource in New Jersey, as they are in Connecticut and New York. With respect to whether fuel cells are a Renewable Energy technology, it must be noted that the statutory law in New Jersey defines "Class I Renewable Energy" broadly to include energy produced from fuel cells powered by any source."[11] Fuel cell systems merit equitable treatment that reflects the actual costs and benefits, including efficient and peak demand reduction of various clean energy technologies. Eligibility for net energy metering would also create parity in the interconnection process both behind-the-meter and for interconnecting DER in publicly owned utility systems; facilitate the use of high

[11] New Jersey Electric Discount and Energy Competition Act ("EDECA"), codified at N.J.S.A. § 48:3-49 et seq.

capacity factor fuel cell systems to ensure resilient microgrids; reduce criteria air pollutant and greenhouse gas emissions; all while creating energy efficiency and energy savings.

***6. What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?***

Consideration should be given to reestablish eligibility for all fuel cell projects in the Clean Energy Program, so long as they meet program criteria. Both combined heat and power and all-electric fuel cell systems should be included in the program. Also, behind-the-meter fuel cell systems that happen to be co-located with other clean energy technologies (e.g., solar PV) should be eligible for full program support.

***8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?***

While the 2018 Clean Energy Act[12] calls for the Clean Energy Program to also take into account energy efficiency measures, the NFCRC recommends that the efficiency protocol be updated to best establish "reasonably achievable targets for energy usage reductions." The methodology and protocols should be consistent with that recommended and used by NREL, EPA, and the World Resources Institute, as delineated in our response to Question 2.

As New Jersey implements the EMP in the next five years, it should support an increase of DER for clean power generation and CCHP. These types of DER are capable of avoiding line losses, as well as transmission and distribution costs, which impacts should be included in the cost-benefit analyses.

For example, fuel cell systems can be installed for the express purpose of supporting capacity needs throughout the utility grid network. Rate structures should be developed to compensate clean, load-following resources that provide increasingly valuable ancillary services such as ramping, capacity, spinning reserve, and voltage and frequency support to the utility grid network. DER and fuel cell systems that can be dispatched in a highly dynamic utility grid network environment should be compensated for operating to purposefully complement intermittent renewable power generation, and improve the reliability and stability of a grid that increasingly utilizes a high penetration of renewable power generation.

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[12] An Act Concerning Clean Energy, P.L. 2018, CHAPTER 17, ***approved May 23, 2018*** Assembly, No. 3723 https://www.njleg.state.nj.us/2018/Bills/AL18/17_.PDF

An incentive for resiliency is also very appropriate to ensure preparation for unexpected grid outages, and to encourage further development of microgrids in New Jersey. Fuel cells provide exceptional resiliency and have maintained heat and power for critical communication hubs, cell towers, data centers, emergency shelters and other essential services across the Northeast during and after grid outages caused by Hurricane Sandy and other severe weather events. Fuel cells also help mitigate an over-reliance on the long-distance transmission of electricity from large-scale resources that are located far from load centers. In the event of a grid outage, fuel cell systems are able to seamlessly island, separate from the utility grid network and support critical loads for customers who increasingly require an un-interrupted supply of electricity.

Moreover, to ensure direct, positive impact on overburdened communities, local DER must be clean (lower or eliminate criteria air pollutants) in order to be located in these urban areas. Note that per unit area of available land (or rooftop) in urban environments, fuel cell systems can deliver much larger emissions reductions than solar PV systems (due to much larger energy density). While more granular locational pricing can drive DER into these communities, New Jersey should ensure that this does not drive high NOx, $SO_2$, particulate matter (PM), and air toxics emitting resources (e.g., combustion-based resources) into those areas. According to the New York University Institute for Policy Integrity:

> "Because DER use often displaces the use of traditional, fossil-fuel-fired generators, the substitution reduces emissions of many air pollutants, including greenhouse gases and local pollutants such as particulate matter, SO2, and NOx, which can contribute to climate change, worsen human health, impair ecosystems, harm crops, and make it harder for workers to be productive. Furthermore, DERs can be particularly valuable if they avoid local air pollution imposed on populations that are especially vulnerable to this pollution, such as low-income communities and communities of color."[13]

By also valuing the reduction of air pollutants and air toxics, the New Jersey Clean Energy Program can also improve the air quality of the most overburdened areas. Fuel cells are

[13] Institute for Policy Integrity, New York University School of Law, "*How States Can Value Pollution Reductions from Distributed Energy Resources*" July 2018, available at: https://policyintegrity.org/files/publications/E_Value_Brief_-_v2.pdf

most often located in urban areas, where power is needed most, providing not only local clean energy, but needed tax revenues to urban communities. The full life cycle benefits of fuel cell systems also reduce community impacts; over 90% of fuel cell systems can be recycled at end of life and do not end up in landfills or hazardous waste facilities.

***9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?***

The Independent Advisory Committee should be free from conflicts of interest with the BPU, applicants and any consultants working with the BPU. In addition, membership should include representatives from objective experts in all of the major technology classes that the BPU desires to support in the program (e.g., fuel cells, solar PV, wind, reciprocating engines).

***11. How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?***

With respect to fuel cell projects, the NFCRC submits that utilizing a cross-cutting protocol (as detailed in the response to Question 2), that measures all of the impacts of a DER project will demonstrate that all fuel cell systems of any configuration, should be eligible for the New Jersey Clean Energy Program, as long as such systems meet the program emissions reduction, efficiency and energy savings criteria. Individual projects should be required to submit specific project performance data to demonstrate that a particular project meets the required goals of the Clean Energy Program in order to obtain funding.

***12. Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?***

For DER, quantitative performance indicators should include power generated, GHG and criteria air pollutant emissions reductions, whether or not benefits are provided to low-income customers, capacity installed, ancillary services that are provided (e.g., ramping, voltage support,

frequency support, spinning reserve), backup power provided, and resiliency and reliability provided (e.g., through fast switch gear and controls).

## III. Conclusion

The NFCRC appreciates the opportunity to respond to these questions on efficiency and demand reduction across BPU programs, and emphasizes the importance of valuing boarder attributes and benefit of using DER and fuel cells to achieve the intended objectives of positive ratepayer impact.

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February 15, 2019

State of New Jersey Board of Public Utilities
44 South Clinton Ave, 3rd Floor, Suite 314
Trenton, New Jersey 08625

RE: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS – DOCKET NO. QO19010040

Dear Secretary Camacho-Welch:

Bidgely appreciates the opportunity to provide informal comments to Board Staff regarding New Jersey's Energy Efficiency and Peak Demand Reduction Programs.

Bidgely's mission is to transform how utilities engage consumers by applying Artificial Intelligence (AI) powered solutions to home energy meter data. Bidgely's AI software platform enables utilities to transform their customer usage data into powerful insights that facilitates seamless digitalization, targets clean energy programs, improves customer engagement, and achieves critical Demand Side Management (DSM) goals. Bidgely's AI-powered disaggregation technology breaks down appliance level energy use from whole-house data using appliance fingerprints. We use AI to power all of our digital customer engagement and personalized and actionable insights which help customers save energy through energy efficiency programs. Bidgely also has a suite of utility-facing business intelligence tools that can help optimize DSM program performance and direct energy efficiency rebates to homes with the most need. Cost per kilowatt hour savings is reduced by using disaggregated data to intelligently target ideal homes for programs. Our technology also supports the design and roll-out of new rate tariffs by discerning discretionary vs. non-discretionary usage.

To date, Bidgely serves behavioral energy efficiency and consumer engagement solutions to more than 25 utilities, with over 10 million homes under contract. By leveraging machine-learning algorithms and customer meter usage data, Bidgely is able to provide significant value to both consumers and utilities in a cost-effective and scalable manner.

Bidgely is strongly encouraged by the recently passed *Clean Energy Act* and the commitment by electric and gas utilities to play an active role in reducing energy consumption in New Jersey. As an innovative company focused on AI-powered disaggregation by appliance, we will focus these

brief comments on sharing information on our vision for energy efficiency and peak demand reduction programs in New Jersey.

Below are responses to a select set of questions proposed by board staff.

1. ***What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?***

Performance incentives, decoupling, and cost-benefit tests like the Total Resource Test (TRC) are fundamental best practice policies that enable a strong energy efficiency market within any given jurisdiction. Bidgely supports all of these basic tenets in New Jersey. In addition, we believe innovative programs that leverage data, artificial intelligence (AI) and analytics can advance demand side management (DSM) programs and provide a more personalized approach to achieving cost-effective energy savings. Achieving energy savings is important but it is equally necessary to have happy and engaged customers that will sustain participation in future programs.

Bidgely recommends four best practice programs for consideration in New Jersey: (a) Behavior Energy Efficiency, (b) Pay-for-Performance/Meter-Based-Savings (c) Home Energy Assessments/Audits, and (d) Integrated DSM (EE+DR).

**(a) <u>Behavior Energy Efficiency</u>**

The leading states referenced above all implement comprehensive energy efficiency and peak demand programs beyond traditional rebate programs. In particular, these states all have robust behavioral energy feedback program offerings (i.e. Home Energy Reports (HERs)). The New Jersey Clean Energy Program (NJ CEP) FY2019-FY2022 Strategic Plan acknowledges this trend:

*"There are emerging program areas that leading portfolios are exploring to capture savings that exceed those available from traditional energy efficiency programs. These include, among others, Conservation Voltage Reduction (CVR), support for enhanced codes and standards, integrated smart thermostat programs, and* ***various types of behavioral and operational efficiency programs****."*[1]

Behavior programs have been around for over a decade and are not new, nor or they emerging programs, however implementation of these programs has been challenging in New Jersey since they require access to customer energy data. For this reason, behavior energy efficiency programs have been implemented through utilities in other states. Bidgely recommends a robust utility-driven behavior energy program in New Jersey that adopts the core aspects of modern consumer engagement - namely that they need to be *personalized*, *actionable*, and *omni-channel* - in order to build a *Trusted Advisor* role with customers:

[1] (2018). New Jersey Clean Energy Program FY2019-FY2022 Strategic Plan. page 53.

- ***Personalized*** by applying Artificial Intelligence to meter data (monthly or hourly) in order to disaggregate usage.
- ***Actionable*** insights enable behavior that will result in savings to be relevant to the consumer's specific lifestyle and compete with other resources.
- ***Omni-channel*** engagement goes beyond increasingly-ignored paper to email, SMS, and, increasingly, Voice Assistants.

Bidgely recommends a behavior energy efficiency program for the next generation Home Energy Report (HER), called the iHER program, where "i" stands for ***itemized, interactive***, and ***inclusive***:

- **Itemized -** Personalization goes beyond demographic information or (inherently limited) statistical modeling to use artificial intelligence for itemizing usage by appliance load to guide energy savings opportunities that are specific to that home. Customers switch from feeling that they are being "energy shamed" via normative influence, to being "energy empowered" via personalized information on their specific usage.
- **Interactive -** iHERs go beyond static, once-a-month paper reports to foster an ongoing interactive dialogue with customers. Customers can provide immediate feedback as they are increasingly doing with all consumer services, from Uber to Spotify, to help shape future offerings, choose their preferred channel, or to generate a personal plan of action. We are in a new era of energy efficiency and HER programs should evolve to reflect technology advancements that enable an interactive experience.
- **Inclusive -** Traditional HER programs tend to target high usage customers (often highest income) resulting in sizable populations being excluded from the treatment group. These approaches rely primarily on paper which can be more expensive per home and often suggest energy efficiency remedies that involve financial investments beyond the reach of many. iHERs support all homes and disaggregation enables behavioral recommendations that are specific to the usage profile but match the demographics of the consumer. Moving away from an expensive paper-based approach to digital can enrich the experience and improve customer engagement for all customers (not just large homes), while reducing program costs.

Behavior energy efficiency programs have benefits beyond measurable behavioral energy efficiency, as these efforts can also contribute to an increase in CSAT and Customer Experience, which are highly correlated to JD Power scores. As consumer expectations evolve and choices increase, it's critical for utilities to ensure their customer engagement evolves commensurately. Behavior programs are a great way to implement this vision.

### (b) Pay for Performance/Meter-Based Savings

Pay for Performance (P4P) is an alternative program approach to procure energy efficiency savings at the portfolio level[2] and it's designed to emphasize energy savings performance at the utility

[2] https://neep.org/sites/default/files/PayforPerformancePrimer.pdf

meter, while achieving persistence of energy savings over time. Residential P4P programs fundamentally differ from traditional rebate (i.e. measure or deemed savings) programs, which are based on a deemed savings value of a measure rather than demonstrated savings achievements at the utility meter. The P4P program model aligns successful implementation and performance with payments for actual energy savings. The objective of these programs is to pay for savings that materialize at the utility meter, therefore energy consumption data is critical to implementation of these program. Software providers and implementers will need access to this energy data to help target customers for projects and regularly track performance to ensure the progress is being made on energy savings targets. This program approach also limits risk to the ratepayer by incurring costs primarily when energy savings are realized at the meter. Residential P4P programs are flexible and allow for innovation to achieve the best possible energy savings results. NYSERDA, CA investor owned utilities, Energy Trust of Oregon, and various other jurisdictions are implementing P4P programs and Bidgely encourages New Jersey to consider these programs within the *Clean Energy Act.*

**(c) Home Energy Assessment/Audits**

Home Energy Assessments/Audits can be a necessary first step for generating awareness of energy efficiency and providing diagnostics of energy savings opportunities. New Jersey has experience with audit programs in the commercial and industrial sector (i.e. Local Government Audit program and Direct Install) and the residential sector would benefit from a similar program with modifications. To that end, we encourage New Jersey to reimagine traditional audit programs and consider a data-driven home assessment program, that incorporates machine learning and disaggregation. Transforming the audit process into a digital customer experience helps remove some of the barriers to participation with traditional audit programs. Specifically, we recommend including the following tools in a comprehensive energy audit program for residential, low income customers, and other hard to reach customers.

- **Online Energy Surveys**: Online energy surveys are one method to support customer participation in home energy audits and audit completion. Building off the omni-channel approach discussed earlier, not all customers will have time to schedule an in-person audit. Online energy surveys can provide customers with a quick home energy assessment that entices more customers to learn more. Providing digital options that leverage disaggregation to pre-fill answers, can reduce the number of questions and survey length and customer fatigue. Using gamification as an element can further ensure customers progress faster through initial survey questions and are motivated to complete the rest of the questions. Online energy surveys are a great way for customers to start their energy journey and learn about how to take the next step to save energy.
- **Field Audit Survey:** Field audit surveys digitize the in-home audit process to give a field auditor an efficient tool to identify valuable and personalized insights for each customer. Appliance level itemization can add value to these tools to help field auditors use data to quickly identify focus areas and high usage appliances so they can be more effective in their audits. Modern field audit survey can also provides auditors with an energy insights dashboard to help them view planned work orders

that can easily integrate with a customer's web portal and a program administrator's web sites.

**(d) Integrated DSM (IDSM)**

Historically, DSM program design starts at the measure level then builds into a program and ultimately a portfolio of energy efficient and demand response programs. This siloed approach makes participation difficult for customers and often misses the additive value some measures have on energy efficiency, peak load and customer satisfaction. Designing a integrated residential portfolio that combines multiple benefits (kWh, kW, Csat) must start with the home - a home with a growing number of connected devices. Using data and customer feedback to design an iDSM portfolio that optimizes connected devices for both grid impacts and customer preference will be key for the long-term success of DSM programs in New Jersey. To date these programs have been focused on Bring Your Own Thermostat (BYOT) programs, but there are a multitude of ways to impact the EE and DR space. We encourage New Jersey to be flexible and customer centric, taking into consideration what is best for the customer at all times, whether it be EE, demand response, or the integration of the two to support peak demand reduction on the grid.

***3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a statewide approach, and how can they be overcome?***

While a state-wide approach has worked for traditionally designed energy efficiency programs this approach has limitations. First, there are few organization with the size and capabilities required to run a statewide program. Second, the statewide approach is intended to maximize societal benefits through a one-size-fits all approach, but advances in technology and the prevalence of data, allow for a more flexible, individualized program design. Determining the combination of statewide vs utility-specific programs should start with the end customer. Customer usage data could and should be utilized to help answer some of these questions.

***4: How can these programs be delivered at the lowest cost to ratepayers, while also providing optimal ease of use and customer service and maximizing market utilization?***

Utilities need to embrace data and AI to address the of evolving needs of the customer, increase DSM savings, and maintain grid stability. Leveraging data driven decision making is one way to ensure programs are being implemented at the lowest cost to ratepayers. For example, DSM portfolios have been heavily reliant on savings from lighting measures for years. Lighting programs have been quickly ramped up or down to hit portfolio goals for savings and spend. As the impact of lighting naturally levels off, the need for comprehensive, data-driven customer acquisition becomes more important than ever. AI and data analytics enable broader, non-lighting, savings and a lasting customer experience through highly personalized engagement. Of course knowing which customers to target is near impossible if you don't understand the energy savings opportunities. Bidgely is working with DSM program implementers and utilities to: (1) optimize

which customer is targeted for a given measure and (2) optimize individual customer targeting across the entire DSM portfolio. For any given DSM program, targeting can be used to find a set of customers and provide a scalable, cost effective solution for them (e.g. low to moderate income customers). Using AI and disaggregated meter data is critical to determine how a home is using energy, and it can help utilities and implementers go beyond today's one-size-fits-all approach, which reducing the cost to serve.

Thank you for the opportunity to provide comments to NJ DPU staff on implementation of the *Clean Energy Act.* Bidgely looks forward to participating in future meetings and providing input to the stakeholder process in the near future.

Sincerely,

*Jordana Temlock*

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Director of Regulatory Affairs
Bidgely, Inc.
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New Jersey Natural Gas

VIA ELECTRONIC MAIL (energyefficiency@bpu.nj.gov)

February 15, 2019

Honorable Aida Camacho-Welch, Secretary
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**Re: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS DOCKET No. QO19010040**

Dear Secretary Camacho-Welch:

New Jersey Natural Gas Company ("NJNG") has reviewed the questions posed in the January 22, 2019 Notice that initiated the Board of Public Utilities' ("BPU") request for comments on the implementation of P.L. 2018, c. 17 regarding the establishment of energy efficiency and peak demand reduction programs ("Clean Energy Act"). Through this letter, NJNG would like to share some key points relevant to the discussion questions.

**Support for Joint Utility Efforts**

As noted at the February 1, 2019 Public Meeting, the New Jersey utilities have initiated discussions to consider the implications of the Clean Energy Act, as well as potential opportunities to collaborate on program design and administration. NJNG strongly supports the written comments that are being submitted separately on behalf of the utilities through the New Jersey Utilities Association ("NJUA"). Since that document addresses utility agreement on many of the policy questions posted in the January 22, 2019 Notice, NJNG will not address the same points within this response.

NJNG would like to note that the efforts to collaborate and strive for consistency are already underway in the delivery of programs. NJNG's new Engineered Solutions program is modeled

after the award-winning hospital program that Public Service Electric & Gas (PSE&G) has run for nearly a decade. PSE&G staff has been generous with both their time and their willingness to share supporting documentation. This is enabling NJNG to launch the program significantly faster and to build off the lessons learned from their experience. It is also making it easier for the trades allies and customers to participate in the program because they understand the approach and it will expedite their review of key program documents. Similarly, NJNG has been sharing insights from our experience in the residential market, including our approach to On-Bill Repayment Programs, with staff from PSE&G and other utilities.

NJNG would like to take this opportunity to share some relevant insights based on our experience working with customers and trade allies and our participation in national energy efficiency organizations.

**NJNG Background in Energy Efficiency**

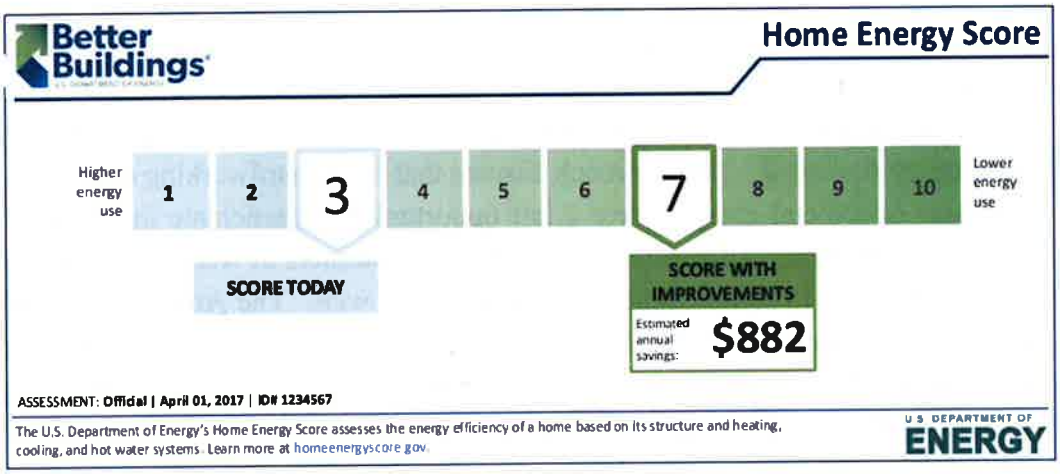
NJNG has proven our commitment to helping customers reduce their energy bills and advancing state energy efficiency programs through our SAVEGREEN Project. SAVEGREEN recently reached key milestones that help illustrate NJNG's impact on the marketplace.

- More than 53,000 customers have participated
- More than $166 million invested in energy savings measures
- More than 2,600 contractors have participated
- More than $350 million in economic activity

To put these customer participation numbers in perspective, that's more than 1 out of every 10 of our customers. Given the fact that SAVEGREEN is less than 10 years old and our core programs have been tied to significant customer investment in HVAC systems, this is a meaningful accomplishment that illustrates SAVEGREEN is motivating more customers to pursue high-efficiency investments. The investment and contractor participation milestones underscore how the SAVEGREEN program is helping advance the clean energy economy.

NJNG has performed more than 20,600 Home Energy Scores, a national standard for rating the efficiency of a home (see image below). That's approximately 19% of the total scores generated across the country. We are one of the longest serving partners for this U.S. Department of Energy ("DOE") initiative and are very proud of our contributions helping DOE refine this rating scale. Some states have adopted the Home Energy Score as a standard for audits and some progressive cities have implemented mandates for homeowners to disclose a Home Energy Score as part of their real listing. We believe that to reach the Clean Energy Act mandates, New Jersey must not limit the utilities ability to propose programs and must

encourage the utilities to take leadership roles in innovative new approaches like the Home Energy Score.




NJNG has strongly embraced educating our customers about energy efficiency and energy conservation since 2006, when our Conservation Incentive Program was first approved. This structure has undergone a thorough regulatory review many times over the past 13 years and has maintained support from both the BPU and the Division of Rate Counsel. We can attest that this regulatory mechanism has helped transform our corporate culture. We have embraced a new way of doing business that actively enables and encourages our customers to use less energy. As a result of this change, our call center staff has proactively provided nearly 3.3 million energy conservation tips since 2008 and our E-tips service has more than 145,000 subscribers who receive monthly emails with helpful seasonal tips and the latest information on program updates and events. We are happy to share more about our experience as the BPU considers how to align the interests of other utilities with the policy objectives.

## Focus on the Barriers

NJNG believes that as the BPU considers how to adjust program administration to ensure New Jersey sets the proper foundation for the utilities to meet the regulatory mandates and help grow the clean energy economy, it is critical to identify and consider how to address existing barriers to energy efficiency. While we are hopeful that this proceeding will generate some stakeholder input regarding barriers, we believe it would be beneficial to host sessions with customers and trade allies that are specifically focused on identifying barriers so we can hear direct feedback from customers. NJNG is providing the following as examples of the types of problems we should be exploring.

**Upfront Costs:** Industry studies often note that upfront costs are a barrier to participation in energy efficiency programs. NJNG been offering an On-Bill Repayment Program (OBRP) for some of our energy efficiency programs since 2011. In addition to eliminating the up-front cost barrier, we believe the OBRP programs can be designed to allow for strong participation from moderate income customers who may be turned away from traditional funding because of their debt-to-equity ratio, or any other calculations traditional markets rely upon. Eligibility for NJNG's OBRP program is based upon past utility payment history and a bankruptcy screening. This approach ensures that many hardworking customers who pay their share of societal charges have a fair opportunity to participate in the programs. NJNG recognizes that this is a barrier for commercial customers as well and has offered an OBRP for participants in some commercial programs as well. The American Council for Energy Efficient Economy (ACEEE)'s recent recognition of NJCEP's Direct Install program highlighted this feature as exemplary. Further, in our energy efficiency filing last year, NJNG was able to demonstrate that the level of activity in the WARMAdvantage was nearly double what would be expected for the number of customers we serve and was more than 2.5 times what would be expected for the Home Performance with Energy Star Program.

**Timely Payment of Incentives:** Customers and contractors often express frustration regarding delays in receiving the incentives from NJCEP. NJCEP materials currently advise customers that "Once approved, it may take up to 120 days to issue the rebate…". Waiting months for a rebate that may be worth hundreds or thousands of dollars can be frustrating for customers. Some customers are able to transfer that burden to a contractor who is willing to accept an assignment of proceeds but that can create a burden for contractors that are interested in expanding their business to focus on energy efficient projects. If they offer that feature to multiple customers, it can quickly snowball into thousands or tens of thousands of dollars in accounts receivable that can negatively affect their cash flow, especially for the thousands of smaller contractors. In contrast, NJNG rebate checks are issued within 10 days of approval which creates a more positive experience for customers and trade allies.

**Special Incentives for Low to Moderate Income Customers:** NJNG recognizes that even with our OBRP functionality many low to moderate income customers may be concerned about their ability to repay their obligations for energy efficiency investments. NJNG is excited about the recent enhancements that the BPU approved for our HVAC incentive program that will help us achieve a stronger, fairer economy. At the beginning of last month, NJNG launched new incentives that allow for these customers to apply for a longer OBRP term and receive rebates to help them offset the incremental upfront costs of installing high efficiency equipment. The combination of these more generous features reduces the monthly payback for participating customers. Customers and contractors are already reacting favorably to this new offer. While it will take a significant amount of time to have enough data to properly evaluate this feature, we are hopeful it will provide a path

to ensure all customers will have the opportunity to participate in the clean energy economy and that any evaluation will provide other recommendations to support this market segment.

NJNG is also excited about the opportunities within our recently approved Efficient Products program that supports a new partnership with local foodbanks that will allow us to provide free conservation kits to their clients. In addition to providing these customers with immediate energy savings, these kits will cross promote both the NJCEP Comfort Partners program and the broad range of energy assistance benefits available in New Jersey.

**Reaching Small Business Customers:** NJNG recognizes that small businesses also face significant challenges in participating in energy efficiency programs. They are focused on their core business leaving little time to understand and investigate energy efficiency options and few financial resources to support the investment. Through our partnership with the NJCEP Direct Install program, where we offer an OBRP for the balance of the project cost not covered by the NJCEP incentive, we have helped some customers in this segment. We are excited for the launch of our recently approved SAVEGREEN on Main program that will provide another pathway to help reach small businesses and can include some measures that are not part of the Direct Install program. SAVEGREEN on Main will include an OBRP component to address the upfront cost barrier and will also test a performance element that will reward customers for achieving energy savings. Our intention is to consult with the customer regarding the needs in their facility and help them determine which program better serves their needs. Plus, we will be able to evaluate and share the insights of a performance based approach for this smaller market with the other utilities, policymakers and interested stakeholders.

NJNG appreciates the opportunity to provide comments on these topics. We look forward to working with the Board and other stakeholders as the State considers how to restructure the approach to energy efficiency as to enable the utilities to reach the aggressive clean energy goals established by Governor Murphy's administration. Please feel free to contact me if you need any additional information regarding these issues.

Respectfully submitted,

Anne-Marie Peracchio

Anne-Marie Peracchio
Director- Conservation and Clean Energy

February 15, 2019

**VIA ELECTRONIC MAIL**
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**Re: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS DOCKET No. QO19010040**

The New Jersey Utilities Association (NJUA) represents investor-owned utilities that provide electric, natural gas, telecommunications, water, and wastewater services to residential and business customers throughout the state. I am writing on behalf of our electric and natural gas members ("the utilities") in response to the January 22, 2019 Notice that initiated the Board of Public Utilities' ("BPU") request for comments on the implementation of P.L. 2018, c. 17 ("Clean Energy Act"). Since our input addresses multiple questions, we have framed these comments around key themes. Also, please note that each of our members reserve the right to submit comments on an individual basis.

**Clarity regarding the role of New Jersey's Clean Energy Program**

The utilities are uniquely positioned to support Governor Murphy's Administration in implementing the Clean Energy Act. Each of our energy members have experience running energy efficiency programs and they recognize the magnitude of the effort required to develop and offer cost-effective energy efficiency programs for their customers.

Our members have initiated informal discussions regarding a portfolio of programs that they believe would be necessary to achieve the mandated reductions of the Clean Energy Act, sharing their experiences and perspectives regarding program design, delivery and specific features that will allow for effective programs and provide the opportunity for all customer segments to participate. This effort includes consideration of the best opportunities to coordinate and collaborate, and working to identify areas where coordination may not deliver any improvements to the program and could, in fact, increase the cost of securing energy reductions.

While the utilities see the opportunity to explore coordination and collaboration, our discussions inevitably and repeatedly return to a fundamental problem. It is impossible for our members to determine the optimal approach or progress very far without a clear understanding of the role of New Jersey's Clean Energy Program ("NJCEP"). In May of 2018, NJUA testified on concerns about language in NJCEP's Draft Strategic Plan. That Draft Strategic Plan repeatedly called for utility programs to be designed so as to not compete with NJCEP programs. However, NJCEP

programs span nearly every market segment. The approach suggested in that Draft Strategic plan would therefore restrict the utilities from offering programs to obtain energy efficiency savings in the most cost-effective manner.

The utilities respectfully note that last year's Draft Strategic Plan, the last known public information shared regarding the energy savings achieved by NJCEP, clearly shows that significant efforts will be needed in addition to what is projected under the current path of NJCEP programs.

| **New Jersey's Clean Energy Program FY19-FY22 Strategic Plan (excerpt from tables on pages 10 and 11)** | | | |
|---|---|---|---|
| | Clean Energy Law Target | Estimated NJCEP Savings for Fiscal 2018 | Aspirational NJCEP Savings for Fiscal 2022 |
| Electric | 2.00% | 0.36% | 0.62% |
| Gas | 0.75% | 0.16% | 0.22% |

The Clean Energy Act is clear. It holds the utilities accountable for achieving energy reductions. The utilities cannot face a mandated responsibility to deliver energy savings as set forth in the law and then effectively be told that they cannot operate in the market segments where the most cost-effective opportunities exist. Niche programs alone will not position the utilities to meet the targets.

If NJCEP continues to exist with a broad suite of programs, a significant amount of stakeholder resources are likely to be expended each year debating whether new program offerings should reside with NJCEP or with the utilities. In addition, significant coordination efforts would be required on an ongoing basis to ensure the NJCEP and utility programs are complimentary and not creating market confusion with customers and trade allies. It would be more efficient to focus our collective resources on policy objectives, assessing how we can improve the experience for customers and trade allies, and determining whether the structure is helping to advance the clean energy economy in New Jersey.

Further, the current structure of the NJCEP as the statewide program allows ratepayer funding to migrate across fuel and utility service territories. So, theoretically, a dollar collected from a gas customer in Cumberland County could be spent on energy-efficient lighting in Bergen County. Ratepayer funding migration and the companion demand reductions is a dynamic that is fundamentally at odds with the new statutory mandate that will establish demand reductions by utility service territory.

**Unique Role of the Utilities, Portfolio of Programs, and Opportunities for Utility Collaboration**

The Clean Energy Act directs the utilities to advance energy efficiency. As part of that effort, the utilities can leverage their ongoing relationship and frequent communication with customers.

Customers recognize their utility brand, and studies consistently show that they turn to their utility for conservation advice and resources. Routine utility interactions like inquiries regarding a high bill or new customer connections can be leveraged into opportunities to participate in our energy efficiency programs. Leading programs across the country are focused on personalization of customer communications to identify the best opportunities for customers to save energy and for improving the targeting of customer participation through propensity modeling. New Jersey's efforts to implement the Clean Energy Act should include recognition of the opportunity to leverage the strengths of the utility-run programs.

The utilities recognize there needs to be a diversified portfolio of programs to ensure that all customer classes have the ability to participate and realize energy savings. It is important that special attention is given to programs and features to support participation by low to moderate income residential customers. It is also important to develop distinct approaches for the residential market segments that include renters and seniors. For commercial and industrial customers, there is an opportunity to expand efforts to serve commercial customers by industry segment, leverage insights from national efforts (e.g. CEE, DOE Better Buildings Network) to learn from others, and share best practices in program administration. All of our member companies have experience with providing programs and can leverage their knowledge to target or maximize participation across customer segments through both program design and implementation.

Preliminary utility discussions identified the key segments listed below for program delivery to ensure that a broad range of strategies are used to meet customer needs and allow for equitable participation in the energy efficiency programs. The utilities recognize that NJCEP currently runs programs for many of these market segments, so insights into the long-term role for NJCEP will set the foundation for more detailed discussions among the utilities for coordination and alignment of programs, including coordinated efforts for some functions or market segments. The key segments are listed as follows:

- Residential Markets
    - Behavioral
    - Efficient Products
    - Mechanical Systems
    - Whole Homes
    - New Construction
    - Direct Assessment (entry level home audit program)
    - Low Income
    - Moderate Income
- Commercial Markets
    - Prescriptive
    - Custom
    - Direct Install
    - New Construction
    - Energy Management (Retro-commissioning and Strategic Energy Management)
    - Comprehensive Whole Building
    - Combined Heat & Power

    - Benchmarking
- Other/Cross-cutting
    - Multi-family
    - K-12 Education and Behavioral Program
    - Emerging Technology and Approaches
    - Pilots

Based on our extensive experience both in and outside of New Jersey, the utilities quickly realized that there are some types of programs where there would be no direct benefit if the utilities were forced to embark on a joint program. Utilities know their individual customers and systems best and are uniquely positioned to deliver cost effective energy efficiency programs within their territories. Thus, mandated coordination of some programs would inhibit the utilities from identifying and personalizing opportunities for customers to participate. The clearest example of this circumstance is the administration of behavioral programs. Across the country behavioral programs have benefitted from incredible innovation in the past few years. The industry is trending towards efforts that are broader than just the traditional Home Energy Reports. There are many more behavioral vendors in the space today than there were a few years ago. These vendors offer greater customization (e.g. specific tips for individual customers based on knowledge of customer profile or demographic information), extra program elements (e.g. high usage alerts) and deeper analytics to target customers for participation in other programs.

To make behavioral programs more engaging to customers and increase energy savings, it is very important to link information from other energy efficiency programs. A customer who purchased a smart thermostat through an energy efficiency program should get tips about the best way to use its features to maximize savings, especially during peak usage times. Customization allows for a focus on demographics (e.g. low income, senior) that may align with other policy objectives. Also, there are many emerging opportunities to integrate with home energy management systems and voice enabled assistants.

In order to offer these personalized, effective experiences, the behavioral programs must integrate with each utility's unique billing system. Forced delivery of a joint program would not achieve economies of scale because billing system integration would occur at each utility, and it would be a costly, time consuming and burdensome task of integration. It is also an example of where multi-state utilities may be able to secure efficiencies by working with a vendor that has already successfully completed integration with their billing system in other jurisdictions. These programs prompt customers to contact their respective utility regarding underlying billing information. A third-party administrator would not have the same core understanding of the utility billing system that utility representatives can provide.

Further, allowing utilities to work with different vendors to deliver behavioral programs provides the opportunity to evaluate the experience with multiple vendors and program designs and for utilities to share their experiences. This would effectively test different program designs and approaches and support utility efforts to maximize the performance of their program portfolios, a benefit that would be lost with a single statewide approach. This could lead to utilities migrating to other vendors at contract renewal if evidence shows that another vendor can deliver stronger energy savings.

On the other hand, the utility discussions are already identifying specific functions where consistency is important, and which may benefit from joint administration. One example here is tied to quality control for both new construction programs and installation of HVAC equipment and mechanical systems. The utilities recognize contractors, building raters, and other trade allies need to have a clear set of standards for participation in the programs and to ensure that they meet the specified requirements of the quality control process.

While the utilities know it will be important to work together, they think there is an even greater opportunity to advance the market by working closely with the Department of Community Affairs and through direct outreach to code officials. The annual American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard consistently reflects an opportunity for New Jersey to improve code compliance. Shifting the outreach and education strategies to compliance with all installations could alleviate some of the perceived burden for participation in energy efficiency programs. Using equipment sizing requirements as an example, there should be a shift from requiring documentation of such sizing calculations to earn a rebate for high-efficiency equipment installations to ensuring these techniques are performed on all installations. With this approach, New Jersey customers would benefit from lower bills even with the installation of standard HVAC equipment and this would achieve more energy savings. This is just one example to show that there is a need for a broader approach to tackling existing barriers.

**Opportunity for Multi-State Utilities**

It is worth noting that our multi-state companies may be able to reference their experience in other states to inform opportunities to build efficiencies here in New Jersey. This is not intended to suggest cross-subsidization between states. It is simply noting the potential for opportunities for multi-state utilities to find efficiencies across systems, processes and programs, where possible. We ask the Board to consider the potential benefits of those opportunities.

**Importance of Emerging Technologies**

The utilities believe it is important for energy efficiency programs to have a dedicated Emerging Technologies (ET) program. An ET program would fund investments that develop critical insights that can help the State with developing longer term strategies. This program is key to gaining technical and market understanding on installation, performance, reliability, and serviceability considerations for new customer energy-efficiency solutions. Funding would support new technologies and program solutions to allow us to meet tomorrow's energy-efficiency goals with less risk and more certainty.

Leading states in energy efficiency have made this commitment. They recognize the importance of an ET program when pursuing aggressive energy reduction targets and the ability to draw in new technologies or approaches as codes and standards advance. It is a reasonable investment to ensure that New Jersey can develop an understanding of the potential for innovative technologies that may transform the approach to energy efficiency. An ET program should support new technologies and approaches that are ready for broader adoption but need enhanced contractor

training, customer incentives, or other key elements to help the marketplace understand the value proposition. When pursuing ET programs, it is important to consider support for educating existing workers and our next generation of engineers and technicians.

ET is also a prime example of a program that can be coordinated across the utilities to ensure that all stakeholders benefit from the insights gained through this program. Recent utility filings have proposed a structured program that would include the involvement of a single New Jersey based university. The university would serve as an independent facilitator to enable utilization of ET and lead an effort to draw in the input of all stakeholders through a stakeholder advisory committee. The committee would review findings and broadly consider how to identify and address relevant barriers in order to leverage market opportunities in a timely manner. This is a critical component to developing a robust clean energy economy in New Jersey.

**Market Potential and Cost Benefit Analysis**

The utilities look forward to the outcome of the Market Potential Study. Several of our companies have recently participated in Market Potential Studies in other jurisdictions that have taken 12 to 18 months to complete. The utilities are ready to provide supporting data that is available in this compressed time frame. In our experience, the term "full economic cost-effective potential" encompasses everything that is cost-effective, assuming limited or no market barriers. Since barriers do in fact exist, the utilities are hopeful that the Market Potential Study will lead to a meaningful discussion of achievable market potential in establishing the Qualitative Performance Indicators for each measurement period. The Market Potential Study should identify what is achievable through individual utility run programs, as well as from other sources. The state should also consider the costs of programs and the customer bill impacts that will result when establishing the energy savings targets.

Further, the utilities see a need to review the approach to Cost Benefit Analysis screening. Several states have taken a closer look at their program screening processes and determined that their approaches to Cost Benefit Analysis were not balanced. Current tests do a better job of quantifying program costs than they do of capturing program benefits (because those are harder to quantify and more variable) and therefore do not always effectively recognize the total value of energy efficiency offerings. As the State shifts to a policy seeking all cost-effective energy efficiency, and recognizing costs to customers, it must ensure that it fairly measures the true costs and benefits.

**Savings Contributions from Other Sources**

The process to determine savings from non-utility sources should be clearly defined and calculated in advance of each program year. With that, the value of the contributions from other sources should be presented to each utility with sufficient time to allow the utility to consider how to administer a cost-effective portfolio or program to achieve or exceed remaining energy and demand reduction targets. The utilities should not be penalized for the potential failure of other sources to deliver anticipated savings contributions.

**Use of Consumer Data**

The utilities recognize that customer usage data is critically important in helping customers and trade allies understand the potential savings from participating in energy efficiency and demand reduction programs. They also recognize that customer usage information is confidential, and that they have an obligation to ensure customer information is protected. In general, customer consent is required prior to release of customer-specific data to third parties. The utilities also recognize that there it is important to ensure that any third-party receiving customer data has proper protocols in place to secure such data from cyberthreats. The utilities will participate in further stakeholder discussions that consider how to properly balance the need to provide data to support the marketplace while also preserving consumer protections.

**Advisory Committee**

The utilities note that the Clean Energy Act clearly provides that the utilities will participate as members of the advisory committee. Each utility looks forward to participating to share the experiences regarding the administration of the programs within their service territory and to hear constructive input from other key stakeholders. This advisory committee can help review the performance of the energy efficiency programs and provide recommendations for improvements as called for the in Clean Energy Act. That said, it will be important for the structure and the timing of this feedback to support refinements on a timely basis while not creating any additional barriers to the timely launch of new programs or refinement of existing programs.

**Alignment of Utility Interests**

New Jersey's utilities primarily recover the cost of their investments in the distribution system through volumetric rates, charged per kWh or per therm for the energy utilities. There is thus a fundamental disincentive in New Jersey's ratemaking process and designs to investment in energy efficiency programs. Energy efficiency programs result in lower throughput (sales) on the distribution system, while the costs of providing electric and gas distribution service (*e.g.* capital investment, and operation and maintenance expense) of the electric and gas distribution systems do not decrease.

The Clean Energy Act does in fact recognize this conflict, as it explicitly states:

> Each electric public utility and gas public utility shall file annually with the board a petition to recover on a full and current basis through a surcharge all reasonable and prudent costs incurred as a result of energy efficiency programs and peak demand reduction programs required pursuant to this section, including but not limited to recovery of and on capital investment, **and the revenue impact of sales losses resulting from implementation of the**

> **energy efficiency and peak demand reduction schedules**…[1]
> (Emphasis added)

We ask that the Board recognize and encourage rate mitigation options that can help bridge the gap between lost sales and insufficient cost recovery as a result of incentivizing these important programs. We also ask that the Board recognize the need to continue to explore appropriate rate design and/or financial incentives for utility participation and support of energy efficiency programs. Such exploration will serve to enhance utility participation and alignment with the goals of the Clean Energy Act, including full and timely recovery of program costs and performance incentives.

**Transition Period**

The utilities recognize the importance of meeting the expectations of customers and properly supporting trade allies. Customers who have unsatisfactory experiences during a transition period may develop a negative association with energy efficiency investments that could reduce their interest in participating in future programs or lead them to share their bad experience with other customers. Either of those customer outcomes would make it more challenging to meet long term goals. Similarly, the utilities want to ensure that contractors and other trades allies understand and can plan for how any shift or expansion of program administration will impact their business, including the potential for improvements that encourage them to play a greater role in the clean energy economy. For example, if utility programs can improve the timeliness of incentive payments it would provide a significant benefit to contractor working capital. Accordingly, the utilities encourage thoughtful consideration of the time frame and approach for the transition of any program that includes the opportunity for stakeholder input.

The utilities appreciate the opportunity to share our comments and look forward to working with the BPU and other stakeholders to determine the best path for securing the mandated energy reductions. The utilities are confident that after the future role of NJCEP is addressed, they can engage in meaningful discussions on the best path forward to develop effective programs that serve the needs of all customers and help build a robust clean energy economy for New Jersey.

Thank you for providing this opportunity to comment.

Respectfully,

[1]Subsection e., P.L. 2018, c. 17. (emphasis added).

Andrew Hendry
President and Chief Executive Officer
New Jersey Utilities Association

**To:** Secretary Camacho-Welch, New Jersey Board of Public Utilities

**From:** Open Energy Efficiency, Inc.

**RE:** Comments on the ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS DOCKET NO. QO19010040

**Submitted:** February 15, 2019

Open Energy Efficiency (OpenEE) is pleased to submit comments on the implementation of P.L. 2018, c. 17 (Clean Energy Act) regarding the establishment of energy efficiency and peak demand reduction programs - DOCKET NO. QO19010040. It is our hope that the following comments provide a foundation for discussion on leading EE and DR policies and program requirements.

New Jersey is poised to adopt policies that will support a transparent, accountable system to scale energy efficiency. It is now possible to make near real-time feedback on changes in energy consumption a centerpiece in the monitoring of energy efficiency program and portfolio performance. With all stakeholders focused on outcomes, New Jersey can optimize business strategies and program designs to meet the energy needs of the future and achieve the state's goals.

OpenEE is an industry leader in meter-based demand-side energy management. We provide an advanced M&V platform, based on standardized methods (CalTRACK) and the open source OpenEEmeter, to track and normalize metered consumption data (monthly, daily or hourly) from individual buildings so that portfolios of assets can be aggregated to provide a flexible, demand-side load balancing system.

Regulators, utilities, and administrators across the country are tackling distributed energy resource management in ways that meet their local needs. We believe the New Jersey BPU has a unique opportunity to adopt policies that take advantage of cutting edge approaches such as tracking meter-based consumption, aligning performance incentives throughout the market and facilitating competitive procurements for local capacity needs.

For follow up questions on these comments please contact:

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# Question 1

What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?

Rather than dusting off a playbook from past energy efficiency and demand side management strategies in other states, New Jersey has the opportunity to re-invent efficiency to meet the needs of a distributed energy future in which efficiency and demand reduction programs will be administered, valued and evaluated to align with grid needs and eventually procured as a key grid resource.

In addition to decoupling and appropriate rate setting, to drive innovation and ensure that energy efficiency and demand reduction can address changing grid needs, New Jersey should::

- Embrace **meter-based quantification** of distributed energy resources to enable consistent, transparent valuation of grid and customer benefits;
- Adopt **performance-based** deployments of programs and interventions to drive accountability.

Meter-based performance helps prime the market for **procurement-based financing,** in which secure, long term and stable investments can be channeled into distributed energy resources, simultaneously increasing private capital and reducing the need for ratepayer funding for energy efficiency and demand response.

Meter-based performance programs, based on monthly data, are attracting a diverse group of market actors delivering a wide range of services to meet a common goal of reductions in energy consumption at the times it is most needed. Meter-based programs can be implemented in any number of administrative structures for energy efficiency and demand response and can truly invigorate local market actors that make up the economic fabric of New Jersey, by aligning performance incentives up and down the market. Performance accountability enabled through consistent, transparent measurement builds confidence and allows for optimization of cost effectiveness rather than litigation of results which can put a significant drag on the administrative structures.

Ultimately, a market-oriented execution of energy efficiency and peak demand reduction programs will support policy goals of equity, drive workforce development, create new jobs and

support new industry in the state for the long term. In addition, performance-based approaches allow energy efficiency and demand response to be treated as a procureable grid resource and financed as such.

Several policies serve as noteworthy examples for states aiming to boost their energy efficiency and peak demand reduction programs:

**Example 1: California Tracks Efficiency as a Change in Consumption at the Meter**
In 2015 California adopted two pieces of legislation that re-oriented quantification of energy efficiency impacts to be based on results at the meter rather than deemed savings calculations. The first was California Senate Bill 350: Clean Energy and Pollution Reduction Act (SB 350)[1] which states that:

> *"energy efficiency savings and demand reduction reported for the purposes of achieving the targets established pursuant to paragraph (1) shall be measured taking into consideration the overall reduction in normalised metered electricity and natural gas consumption where these measurement techniques are feasible and cost effective."*

Given the high penetration of AMI and frustration with deemed savings approval systems and ever-increasing code baselines, the legislation looked to align the outcomes of interventions more closely with absolute reductions in consumption.

Synchronous language in SB350 called on the California Public Utilities Commission to authorize pay-for-performance programs as a model for aligning incentives and improving accountability for delivering savings.

> *"Authorize pay for performance programmes that link incentives directly to measured energy savings."*

At the same time, California adopted AB-802[2] which moved the state towards meter-based energy efficiency by implementing benchmarking and directing the California Public Utilities Commission (CPUC) to:

> *"determine how to incorporate meter-based performance into determinations of goals, portfolio cost-effectiveness, and authorised budgets, the commission, in a separate or existing proceeding, shall authorise electrical corporations or gas corporations to provide financial incentives, rebates, technical assistance, and support to their customers to increase the energy efficiency of existing buildings based on all estimated energy*

[1] http://www.energy.ca.gov/sb350/
[2] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802

> *savings and energy usage reductions, taking into consideration the overall reduction in normalised metered energy consumption as a measure of energy savings."*

Over the past three years, several programs have emerged respond directly to the legislation. Pacific Gas and Electric has adopted a progressive pay-for-performance procurement model in which residential programs have the flexibility to offer a wide range of solutions to customers, and be compensated for the total savings as well as time-specific savings that offset steep ramping of peak in late afternoon. The majority of third party proposals submitted to the four investor owned utilities in 2019 included a meter-based efficiency approach, and may also leverage a pay-for-performance model of implementation. Non-utility administrators BayREN and MCE are also in the midst of implementing meter-based pay-for-performance procurement models in the small and medium business and residential sectors respectively.

Several of these programs were recently highlighted in an EM&V forum hosted by the California Efficiency and Demand Management Council illustrating the significant potential for these models for the future of energy efficiency as a resource in California.

**Example 2: New York Launches Pay for Performance to Animate Markets**
In February of last year, the The New York State Energy Research and Development Authority (NYSERDA) and the New York Department of Public Service presented a conceptual framework for pay-for-performance energy efficiency in New York State, and hosted a roundtable to solicit feedback on the plan from a wide range of industry players and advocates.

Pay-for-performance aligns with New York REV goals to animate markets and drive innovation in the delivery of energy savings, while attracting private capital to finance efficiency in the same way grid infrastructure is financed. By leveraging initial New York smart meter deployments, these pilots will set the foundation for time and locational energy efficiency to support non-wires and pipes alternatives. They will also provide valuable load balancing resources to support the continued deployment of clean, renewable, and intermittent energy resources as New York drives toward a goal of 50 percent renewable generation by 2030.

NYSERDA is slated to invest at least $50 million in a series of metered pay-for-performance pilots. Initially, NYSERDA will partner with Con Edison on small to medium businesses (SMB) in Westchester and Staten Island, and with National Grid on residential in Clifton Park, Half Moon, and potentially the Capital District.

As in other P4P programs, qualified aggregators (companies or other third parties that bundle efficiency) will bid for the opportunity to join the program based on estimated savings, market intervention plan, and bid price. Those that win will work with contractors to implement sets of interventions and be paid quarterly based on savings achieved.

The NYSERDA team is leveraging consistent meter-based quantification methods (CalTRACK) to calculate changes in energy use. CalTRACK is a set of open source, empirically validated and replicable methods for calculating energy savings by comparing weather normalized pre-and post-retrofit energy use for a given customer or portfolio of customers.

In the New Efficiency: New York plan, released in 2018, the value of consistent tracking was highlighted for its ability to align incentives for market actors:

> *"Thus, the core of the P4P model is the design and alignment of the performance-based requirements between the program administrator and the service provider as well as the corresponding services/requirements between the service provider and the customer."*

These new market based models will continue to support the overall NY REV process moving towards animated DER markets that include energy efficiency and increasing the targets for efficiency[3]. New Jersey has the similar opportunity to leverage these procurement models to streamline program administration and improve accountability and transparency across the system.

**Example 3: Oregon Adopts Pay for Performance to Neutralize Carbon Footprint**

In late 2017, Oregon Governor Kate Brown announced that she was ordering the Oregon Public Utility Commission to work with the Energy Trust of Oregon to launch pay-for-performance programs for energy efficiency beginning in 2019. The governor's directive was part of an executive order designed to help Oregonians use energy efficiency to neutralize their carbon footprints and achieve net zero energy ready buildings as standard practice across the state. A second executive order is aimed at increasing the adoption of zero-emission vehicles.

In addition, the executive order directs the Oregon Department of Energy and the Public Utilities Commission to support broad data sharing to inform energy efficiency policy. As data is the unrefined ore of innovation in energy efficiency, this is a crucial step toward enabling P4P markets.

To lay the groundwork for Oregon's P4P program, Energy Trust of Oregon implemented a new statewide energy efficiency data management platform in 2018. Already a leader in data-driven program design, Energy Trust's new platform will allow it to evaluate and optimize its existing program performance in real time and develop actuarial data that will aid in the design of P4P. In addition, the Energy Trust of Oregon has taken the additional step of building net analysis into their automated impact evaluations, which is summarized in this document Comparison Group Identification for Impact Evaluation.

Non Wires Alternatives, of course, offer yet another wide range of examples of best practices for aligning efficiency and demand response with grid needs. A paper just released in 2018,

[3] http://aceee.org/press/2018/01/new-york-governor-cuomo-announces

Non-Wires Alternatives Case Studies from Leading U.S. Projects, provides an overview of several key projects with a robust set of lessons learned and best practices to take forward.

## Question 2

How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?

New Jersey should define "full economic, cost effective potential" in relation to the costs and benefits of the next alternative to supply. To assess the full potential for reducing consumption, technology agnostic approaches should be emphasized rather than focusing only on the impact of specific measures. This is important to enable holistic analysis of the opportunities of distributed energy resources and to keep the opportunities for integrated solutions across distributed energy resources on the table.

Energy efficiency targets should not constrain investments in energy efficiency. Technology-specific, bottom up potential analysis can have this effect by driving single-measure, prescriptive programs rather than enabling integrated solutions. In addition, alternative valuation and procurement structures that allow energy efficiency to be valued as a cost-competitive resource alongside the next alternative for supply, allow for the development of integrated solutions based on market need rather than a fixed potential target.

PacifiCorp is one example of an integrated resource modeling approach that may be appropriate for consideration, given the way they frame energy efficiency as a resource. Best Practices in Electric Utility Integrated Resource Planning notes that:

> *"PacifiCorp is one of the only utilities in the country that models energy efficiency resources as supply side resources, rather than as load modifiers. The utility provides the model with specific quantities of energy efficiency at given costs, and allows those efficiency resources to compete against the other resources from which the model is able to select."*

The inputs to the energy efficiency portion of the model are derived from a measure specific potential study. It is sensitive to the size, type, timing, location and cost of the technically available potential in the service territory. The report noted that:

> *"Energy efficiency measures performed well in the modeling, representing the largest resource added through 2030 across all portfolios with cumulative capacity additions exceeding 2,500 MW in the preferred portfolio. The inclusion of such large quantities of energy efficiency creates huge cost savings to ratepayers. If energy efficiency were not*

> *included in PacifiCorp's resource portfolio, the utility would have to meet electric load by adding 2,500 MW of supply-side resources at much greater cost."*

A report conducted by Rocky Mountain Institute last year, The Economics of Clean Energy Portfolios, offered a similar picture of an integrated modeling approach from a supply side perspective. In this study, the author demonstrates the ability of energy efficiency and other distributed energy resources to offer viable, cost-effective alternatives to other supply side resources. These frameworks and analyses offer insights for definitions for New Jersey that can better align investments in energy efficiency based on its competitiveness with other resources, rather than a siloed "potential, budget, spend" model.

## Question 3

> What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?

As New Jersey considers transitions to utility or other administrative models, it should focus on the rules and principles that govern consistent tracking and monitoring of outcomes rather than detailed inputs for program design.

Most investments should be directly tied to local needs for a service territory and therefore utility administration provides the best opportunity for meeting grid needs. However, we also believe that third party implementation should be the primary vehicle for utilities to procure energy efficiency products and services to ensure that customers can have access to the highest quality products and services that can "keep with the times".

Statewide implementation should be limited to improving general accessibility of efficient technologies in the market (usually through upstream programs), as well as appliance and building code improvement (and enforcement). Nearly every other intervention would be better administered in tight alignment with grid planning and procurement with utilities competitively procuring efficiency resources from aggregators in the market. Aggregators should have flexibility to offer the kinds of incentives they identify for customers, rather than prescriptive incentives. Eligibility criteria should be limited to essential components to limit fraudulent activity and enable the ability to track outcomes.

Statewide approaches can offer consistency in administration, usually around technology-specific incentives. One disadvantage of these approaches is their limited ability to sync incentives with value delivered to the grid. This disadvantage could be overcome,

however, with transparent, consistent, real-time measurement and verification that offers a consistent, simplified path for procuring energy efficiency resources. Embedded measurement and verification should be a requirement for any program, regardless of administrative model.

## Question 4

> How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?

By leveraging market-based procurements and only paying for savings delivered (via pay for performance models) programs can deliver savings at the lowest cost to ratepayers over time. These models, when embedded measurement and verification is included, can optimize the interventions for customers, resulting in better service, ease of interaction, and maximum market utilization. At the beginning, pay for performance can be based on monthly data streams, and move to daily and hourly data as AMI is deployed.

States and utilities can play a pivotal role in creating sustainable market structures and procurement strategies to leverage external capital and make distributed energy resources a scalable resource that is part of the grid mix. They also are essential in maintaining accountability and competition via contract guidelines, consistent and open measurement and verification, and supporting growth of the industry.

Efficiency programs that feature upfront rebates to upgrade technology in homes and buildings do not produce consistent savings, creating a risky investment for ratepayers with potentially poor returns. By contrast, pay-for-performance programs reward providers of efficiency based on actual, metered results and ratepayers only pay for what is delivered. We recommend that New Jersey adopt pay-for-performance programs and competitive procurement as a first priority where feasible and appropriate, which will deliver more cost effective, reliable savings.

## Question 5

> What is the best way to minimize administrative costs and avoid duplicative administrative structures?

During the transition period, New Jersey should develop a staggered approach to transferring responsibility to different administrators. This will enable as smooth a transition as possible and keep administrative costs from start-stop transition or duplication to a minimum.

Longer term, a key way to minimize administrative costs and avoid duplicative administrative structures is to build data bridges to communicate up and down the market and across administrative bodies (utilities, regulators, state agencies) with common language about progress. This also allows for all actors to maintain accountability through transparency.

Program administrative costs can balloon if there isn't an efficient means for coordination between multiple entities, data sharing protocols, or a settlement process that allows for transparency and accountability across multiple regulatory and organizational boundaries. Successful programs must build on a solid foundation that anticipates these barriers.

Pay-for-performance program models operating in California, New York and Oregon have addressed this barrier by utilizing a software platform that can securely link information about a site specific intervention up to the portfolio. Aggregators and contractors can troubleshoot and optimize their portfolios and learn what is working best. Administrators can support aggregators and contractors that are struggling or reward those that are exceeding expectations based on a transparent settlement tool. Regulators can be kept abreast of progress with confidence in the results and plan for deeper analysis as needed.

## Question 6

> What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?

As New Jersey transitions to new administrative structures for energy efficiency, developing consistent approaches to valuing outcomes, and supporting structures that enable market actors to deliver products and services known to be successful should be prioritized as stakeholders become accustomed to new flows of data and information to support the transition.

**Operationalizing consistent measurement and verification through open source code** enables the deployment of any number of known and currently unknown interventions or combinations of interventions that may drive consumer and grid value in New Jersey. Access to data and democratization of the information across market actors would enhance existing programs by making their grid value traceable, and target more investment in the activities that are delivering value to the grid.

New Jersey can **set the expectations now that deployment of energy efficiency can be enhanced through visibility**. If you measure it you can manage it. Once the resource of energy efficiency can be seen as a tangible product, it becomes possible to target interventions to where and when, (timing and location), they deliver the greatest value. These improvements can happen within nearly every program currently being offered in the state. Setting an

expectation of embedded measurement and verification also provides the data necessary for the market to react to price signals in order to optimize how services are delivered and operated in the future.

New Jersey can **leverage market-based structures for procuring energy efficiency programs and products now**. Contracts and payments can be based on the meter-based performance of the energy efficiency intervention, alongside other performance criteria that may currently be in use. In addition, a wide range of market actors are ready and willing to support New Jersey to scale investment in energy efficiency while administrative structures emerge. More examples of models are included in a report issued by NRDC titled: Putting your Money Where Your Meter Is.

## Question 7

> What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommended for sharing that data?

The approaches to data sharing are critical to enabling the market-based energy efficiency procurement models of the future. Mission:data has been working across the country to understand best practices. They have reviewed and carefully considered rules and regulations guiding data privacy and electronic access to customer data held by utilities in California, Illinois, New York and Texas. We encourage New Jersey to review the ten points included in Energy Data: Unlocking Innovation with Smart Policy, so they don't have to reinvent the wheel in this department.

## Question 8

> What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?

Cost-benefit analysis should be primarily focused on the the cost of investing in the next supply side resource, and be based on meter-based outcomes, not deemed savings estimates. The National Standard Practice Manual offers a systematic approach to consider the range of data, assumptions, methods and considerations that would be appropriate for New Jersey given their policy objectives.

Barring further details, cost-benefit analyses will best reflect appropriate value when they:

- Quantify energy savings impacts at the meter
- Align time based savings to align with actual avoided emissions and costs
- Do not penalize co-funding projects by participants or other entities (participant cost)

## Question 9

> What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?

The membership of the Independent Advisory Committee should include market actors or organizations that represent their interests. The role of the body should be to ensure that the markets are functioning and transparent to enable energy efficiency to meet New Jersey's goals.

## Question 10

> How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?

New Jersey should be tracking absolute changes in energy consumption, efficiency, and carbon intensity for the full state as well as for specific utilities to inform targets, QPIs and performance incentives. This tracking will more accurately align with the state legislative goals to reduce annual usage by 2% for electric and 0.75% for natural gas, rather than incremental gains in efficiency.

New York is adopting this model of "top down" tracking described in New Efficiency: New York:

> *"In conjunction with program-level reporting, New York State should track and regularly report on actual changes in energy consumption in buildings and the industrial sector to assess the aggregate impact of energy efficiency activities in a "top-down" manner. Meeting the State's ambitious climate goals requires a decrease in total site energy consumption over time, which requires energy efficiency to offset economic trends that may otherwise increase energy usage (e.g., growing plug loads, construction of data centers). This white paper, therefore, recommends tracking overall statewide electricity and fuel sales, aggregated into site TBtu consumption, with minimal adjustment for exogenous factors."*

To this end the report recommended that:

> • *DPS and NYSERDA shall develop improved approaches to regularly and accurately assess the aggregate impact of energy efficiency activities through top-down analysis of energy consumption trends over time, coupled with transparent program-level reporting.*
>
> • *Integrate comprehensive progress reporting toward the 2025 statewide energy efficiency target into future State Energy Plans and the biennial updates to each State Energy Plan.*

The California Energy Commission also modeled this holistic consumption analysis approach in 2017 by analyzing the changes in usage from one year to the next for all customers across the state. This approach opens up opportunities to target efficiency investments to specific sectors, feed long term forecasts, as well as track overall progress. OpenEE conducted the analysis and created the following video to explain the potential "Meter Everything" brings to statewide tracking.

Meter-based tracking of consumption changes will aid in monitoring progress toward the shared objectives in the state. New Jersey can adopt consistent and transparent tools to enable sector-level, utility-level tracking alongside statewide tracking, instead of having multiple systems tracking in slightly different ways. Any administrative actors that may emerge from these deliberations, or later, could be held to the same quantification approach. In addition, by embedding consumption analysis in programs, utilities and statewide tracking supports alignment of incentives up and down market actors, as well as across regulatory and legislative goals.

New Jersey could move beyond energy savings targets and instead pivot to performance-based incentives that reflect the shared legislative objective of reduced consumption. Possible metrics could include changes in energy consumption, reductions in carbon intensity, or improved efficiency per unit of gross domestic product or per customer served.

Performance-based regulations come with the caveat that "focusing on metrics with clear measurement methods is valuable and more likely to result in success." The Regulatory Assistance Project in Next-Generation Performance Based Regulation: Emphasizing Utility Performance to Unleash Power Sector Innovation cites this recommendation along side several other lessons learned, making the ultimate point that PBR has the opportunity support a focus more on **outcomes** rather the **inputs**.

# Question 11

How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?

In transition, New Jersey should adopt straightforward metrics that align with the overarching goals - absolute reductions in energy consumption and carbon intensity of energy consumed. Utilities and DPU should start building the data sharing infrastructure and reporting mechanisms required for transparent tracking of performance incentives or penalties.

Over time, the performance incentives and penalties can be modified or adapted to more specific goals and objectives or even customized to specific utilities. Incentive structures should be reflected in the payment and performance incentives downstream to ensure all actors are motivated to action toward the same goal.

One great local example is the New York Reforming Energy Vision (REV) approach to the Earnings Adjustment Mechanism. Utilities can include a mix of EAMs in their rate plans to incentivize achievements in energy efficiency, system peak reduction, and broad programs to encourage distributed energy resource integration, energy intensity across different service classes, and GHG emission reductions. A report released last year titled "Earnings Adjustment Mechanisms to Support New York REV Goals" by AEEI and Synapse offers a great summary of pros and cons of models that were considered in this process.

New Jersey can also draw on best practices for performance incentives from other states and countries. The Regulatory Assistance Project (RAP) has synthesized these in several documents and presentations. RAP is also home to the world experts on performance-based regulations.

Drawing on Next-Generation Performance Based Regulation: Emphasizing Utility Performance to Unleash Power Sector Innovation, New Jersey should review best practices cited in the report as well as keep in mind some of the lessons about how performance based regulations should NOT be done:

> • *Basing performance incentives on inputs is generally a poor practice. Inputs, and particularly spending, tell little about whether a successful outcome or savings are achieved.*

- *The business-as-usual (BAU) outcomes need to be understood before incentive levels and targets are set. If incentive levels or targets are set at what BAU operations would achieve anyway, then additional incentive costs are incurred with no additional benefit to customers.*

- *Regulators learn that sometimes rewards or penalties are set too high or too low to reach the desired outcomes. Experience allows for modifications and adjustments to refine PBR programs.*

- *Establishing a well-designed set of performance incentives can require significant utility and regulatory resources.*

- *Unclear or uncertain metrics or goals create uncertainty for the utility and regulator.*

In addition to RAP suggestions, OpenEE offers the following recommendations for implementing performance incentives or penalty structures based on our past experience and current experience in facilitating performance-based programs. In an article titled The Promise of Performance more background is available on some best-practices highlighted below.

**Require transparent, open and replicable methods to track performance metrics.**
If energy savings will be the key performance metric, OpenEE suggests that New Jersey should seek to move away from deemed savings estimates toward meter-based energy savings which reflect the actual changes in consumption at the meter. The real-world performance of energy conservation measures, programs, and ultimately contractors and obligated suppliers themselves should form the basis for incentives and penalties. This principle also applies if carbon intensity is the metric of choice.

**Agreement on methods is not enough. Having tools and infrastructure to share information is critical to enable transparency and confidence in the settlement.**
All actors in the system need to know how they will be measured and judged to assume responsibility and maintain accountability, and they need the ability to monitor progress as things roll out. Methods need to be consistent, but also transparent and replicable. To be replicable, the nitty-gritty execution of the method must be accessible. If there is too much room for interpretation, methods will be vulnerable to persistent attack, usually from the party that didn't get a favorable outcome. Energy efficiency requires upfront agreement, because there is no other ground truth.

Allowing energy efficiency savings calculations to be endlessly disputed makes scaling the system difficult, impedes efforts to create and exchange a commonly understood unit of savings, and sacrifices the general sanity of all who are involved.

Citing a generic method is not enough. Publishing and following evaluation frameworks and protocols is not enough. The method and the execution of that method must be accessible at the design phase, foundational to deployment of the effort, and serve as the contractual basis for payment. There can be no shortcuts here. Having qualified evaluators on either "side" is not enough, as that only ensures the debate will be robust and last forever.

**Be clear about the rules and be ready to enforce them.**
An agreed upon execution of a method, revealing all the decision points for calculation, needs to be the foundation for the performance agreement and the contractual execution.
In order to design successful business models and dissuade bad actors, all parties need a clear set of rules that is aligned with the intended outcomes. Regulators and utilities will need to find the right balance of performance criteria and specific rules to manage contracts and conduct oversight. Utilities will have the challenge of balancing regulatory guidance, state and federal laws, and their own strategies – all without overburdening the system. Regulators will need to create stable rules while also offering a process that allows market actors to iterate and improve, making room for creative solutions to emerge and be tested so that the market can evolve toward the best models.

Depending on performance requires enforcement. Enforcing the rules builds accountability both by ensuring a level playing field, and also by reinforcing intent of the rule. It builds confidence in the results, and it rewards those who can deliver based on the agreed-upon parameters. Performance-based policies or contracts will not drive accountability, and they will not survive, in an uncertain enforcement environment.

**Access to information, analysis, and performance allows for mutual accountability.**
Adopting agreed-upon techniques for monitoring meter-based savings offer regulators, utilities, implementers, aggregators, and customers an opportunity to have a common understanding of what "savings" means and monitor them in near real time. It is not a stretch to also monitor the effects of interventions alongside natural changes in usage. Providing ubiquitous access to the data and information on which performance is based means that actors can confidently exchange their services based on these results. They can also take corrective action to improve performance along the way in order to deliver on their promises. As trust in savings performance builds, balancing payments with other performance criteria may be prudent. As AMI comes on board in New Jersey, time, location, and load shifting values can create new incentives and reinforce the value of kWh and therm savings up and down the market chain based on what's delivered.

Validation and verification by third parties should not be done behind closed doors. A clear and transparent audit can be focused on review of approved methods and agreed upon execution. This is how detailed methods found in CalTRACK and the open source code of the OpenEEMeter are supporting performance based models. Instead of saddling regulators with

the full burden of re-creating a savings profile in a “crime scene investigation style” where gaps in information and timely return of results consistently hinder value, having a transparent approach allows evaluators to tackle interesting questions that they never get to in typical research plans because of a lack of data or budget. All actors can contribute to delivering the value of information on performance because it will matter to all of them.

## Question 12

> Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?

As the incentive structure is established, or in lieu of it being finalized, the information submitted should provide information about the paths by which the public utilities plan to achieve such goals (i.e. target sectors and procurement strategies), the estimated impacts, and estimated costs. This basic set of information should enable regulators to review the rationale of the proposals and their likely outcomes. The review should not include an extended analysis of program design or appropriate technology.

Over time, these applications should be expanded to include information about how these investments are going to provide value to the utility systems for specific locations, timing of grid needs or constrained capacity, as well as how energy efficiency is serving as a least cost alternative to other resources. Tracking information on past performance and data to inform performance incentives or penalties should be part of the submission in the future.

Annual petitions should serve the role of progress monitoring, accountability, and transparency for all stakeholders, but especially for utilities and regulators to “get on the same page”. They should not serve as a forum for debating program design or wrangling with outstanding policy issues.

## DEFINITIONS & REFERENCES

CalTRACK Definition: "CalTRACK specifies a set of methods to standardize the way changes in energy consumption are measured and reported. When CalTRACK is implemented through open source software, these methods can be used to support procurement of energy efficiency, electrification, and other distributed energy resources. Others can use CalTRACK as a best-practices guide to calculating meter-based changes in energy consumption."
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**February 15, 2019**

**Via Electronic Delivery**
New Jersey Board of Public Utilities
Attn: Hon. Aida Camacho-Welch
44 South Clinton Avenue, 3rd Floor, Suite 314
Trenton, NJ 08625-0350

**Re: IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS - DOCKET NO. QO19010040**

Dear Secretary Camacho-Welch,

Enclosed please find Petra System's comments regarding the above-captioned matter.

Please do not hesitate to contact us if you have any questions or comments.

1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost- benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?

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Answer:

Cost of street light consumption represents, on average, the second largest expenditure for Municipalities in their annual budgets. Reduction of such cost by the replacement of HPS fixtures by efficient LEDs is a standard practice that is being applied in many states and cities achieving reduction in the range of 50% of the original consumption.

**However, the best practice on this matter is the reconversion of the street light systems into a valuable asset that provides financial benefits, improves the service and enables additional smart city (or IoT) applications using the synergy of the deployed technology.**

This best practice is achieved by replacing the inefficient HPS fixtures by LED streetlights with smart light controllers ("SLCs"), a communication network and, an asset management platform for remote monitoring and control providing the following additional benefits compared to the installation of LEDs only:

Financial Benefits:

- 10 to 15% additional energy savings due to dimming capabilities of the SLCs., adjusting each unit to the exact level of illumination required by each location;
- 15% additional energy savings if dynamic dimming is applied to the installation (dynamic dimming reduced the illumination to minimum levels in absence of circulation of vehicles and people (e.g. between 1.00 and 5.00 am)).
- Reduction of inventory levels, by the utilization of only one type of LED as the different illuminance requirements are controlled by the SLCs.
- Reduction of O&M costs, as the remote control platform reports failures with exact location and diagnosis, minimizing the circulation and repair time.

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Quality of Service Benefits:

- With the information captured by the revenue grade meters of the SLCs, Municipalities will be able to pay for the exact consumption and be able monitor their actual savings compared to current methods that are based on estimations.

- Avoidance of customer claims for day burners and malfunction fixtures, as the SLCs report in real time the status of each LEDs to the remote control.

- Illuminance levels adjusted to each location following standards recommended by authorities and regulators.

Additional Services:

- The SLCs and Communication Network installed as part of the street lights reconversion create an infrastructure that is capable to enable Smart City applications. If these Smart City Applications are operated for commercial purposes, they could generate a stream of revenues to the Municipalities or to the owner of the installation (utilities) by renting the capacity available for connectivity. Example of Smart City Applications are:
    - Security surveillance;
    - Bill boards for emergency communication
    - Traffic Controls
    - WIFI Hot Spots/WIFI services

- If applied to utilities, the communication network deployed as part of the reconversion of the street lights can be shared with AMI technologies and other distributed installations that require similar connectivity and remote monitoring capabilities.

2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?

   Answer:

   The experience of applying best practices for the reconversion of the street lights systems indicates that these projects have a positive IRR, create savings that are higher than cost of financing the projects and create economic value for all participants in the plan:

   - For cities and municipalities, they create a positive cash flow impact as the immediate savings of cost of energy are higher than the annual payment of financing the investment;

   - For cities and municipalities, they enable the application of IoT or Smart City services w/o additional capital investments;

   - For utilities, these investments provide a guaranteed return on assets while reducing the consumption of electricity to the cities.

   - For taxpayers, the positive cash flow impact on their Municipalities should be reflected in lower taxes, or additional services for the same level of taxes.

3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?

   Answer:
   The municipal market should be served statewide especially when it comes to networked lighting solutions coupled with Smart City applications. The economy of scale coupled with operational synergies favors state-wide approach. As the public travels and interacts with Smart City systems, a state-

wide approach is necessary to avoid the complexities of partial solutions. An EZ pass system is an example that is implemented state-wide.

4. How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?

   Answer:

   The state should leverage existing investments and maximize sourcing of NJ developed technologies. For example, NJ ratepayers and PSE&G have deployed 3200 network access points for the Neighborhood Solar under the Solar 4 All program – Segment II. Those access points can be leveraged in the build out of streetlight smart controllers and Smart City applications.

5. What is the best way to minimize administrative costs and avoid duplicative administrative structures?

6. What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?

Answer:
The application of best practices for the reconversion of street lights systems does not create any disruption in the system, as each reconverted unit continues providing the service instantaneously. Benefits (savings) start at the moment of the reconversion.

7. What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommend for sharing that data?

8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?

Answer:
Public safety, local technology sourcing, job creation, forward and backward compatibility are major considerations for cost-benefit analyses. Avoidance of economic leakage should be a key goal.

9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?

Answer:

Membership should include Public Private Partnership members. In addition to the utilities, staff and the rate advocate, membership should include academia, local technology providers and state residents who have national and international expertise in decarbonization, energy reduction and demand management. The proper role is to advise on the implementation of state clean energy policies and provide feedback to stakeholders. A peer selected Independent Advisory Committee is a good approach that ensures the selection of subject matter experts.

10. How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?

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11. How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?

12. Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?

Respectfully Submitted,

Petra Systems

Marcelo Figueira, COO

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February 15, 2019

IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, c. 17 REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS

BPU Docket No. QO19010040

**VIA E-MAIL (energyefficiency@bpu.nj.gov) AND FIRST CLASS MAIL**

Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue
3rd Floor, Suite 314, CN350
Trenton, New Jersey 08625

Dear Secretary Camacho-Welch:

Please accept this correspondence on behalf of Public Service Electric and Gas Company ("PSE&G" or "Company") in connection with the above-referenced matter. PSE&G thanks the New Jersey Board of Public Utilities ("BPU" or "Board") for its initiation of this stakeholder process, as well as the opportunity to provide these comments and respond to Board Staff's questions. PSE&G remains committed to implementing the energy efficiency and peak demand reduction provisions of the Clean Energy Act ("Act"). Consistent with this objective, PSE&G respectfully submits the following responses to the questions indicated below:

**Question No. 1**: *What are some of the best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals.*

**Response**: The first and most important issue to address is one of governance. Across the nation, the states with the most successful energy efficiency portfolios, such as Massachusetts and California, which claimed the #1 and #2 spots on the 2018 American Council for an Energy Efficient Economy ("ACEEE") state scorecard,[1] are states where energy efficiency programs are operated by utilities, with state regulators and advisory councils providing strategic leadership and oversight. This approach creates tailored, non-duplicative,

[1] https://aceee.org/press/2018/10/aceee-2018-state-energy-efficiency

program management structures that best serve the customers of each utility, and is consistent with the best practices from the top-ranked states on the 2018 ACEEE state scorecard, where utilities run some or all of the regulated energy efficiency programs in eight out of top ten states.[2] It is also consistent with the Act, which requires utilities to meet energy savings targets.

In New Jersey, while the State has successfully implemented energy efficiency programs, utilities must now adopt this best practices model and take the leadership role, with the BPU and an independent advisory council providing strategic leadership and oversight. PSE&G and New Jersey's other utilities are uniquely situated to cost-effectively implement energy efficiency programs given their preexisting customer relationships, experience in implementing award-winning energy efficiency programs, ability to provide on-bill repayment options, and access to customer usage data.

Another best practice would require regulatory reform to align utility business goals with energy savings goals. A decoupled rate structure that encourages utilities to help customers use less energy while still allowing utilities to collect the revenue needed for them to provide safe and reliable service is essential.

The current ratemaking model creates a disincentive to promote energy conservation and efficiency that must be eliminated if the energy reduction targets set forth in the Act are to be achieved. The decoupling mechanism proposed by PSE&G, referred to as the Green Enabling Mechanism (or "GEM"), in its Clean Energy Future – Energy Efficiency filing, BPU Docket Nos. GO18101112 and EO18101113, eliminates this disincentive, consistent with New Jersey policy and law, including the provision of the Act requiring a utility to include as part of its annual cost recovery filings "the revenue impact of sales losses" resulting from implementation of energy efficiency programs. N.J.S.A. 48:3-87.9(e)(1).

Furthermore, decoupling is well linked to high achievement of energy savings. This is why more than 20 states have adopted some form of decoupling. This includes the five states that experienced the most electric savings from energy efficiency programs in 2017 (as a percentage of retail sales) -- Vermont, Rhode Island, Massachusetts, California and Connecticut.[3]

Best practices related to performance incentives and cost-effectiveness are described below.

**Question No. 2**: *How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?*

**Response**: The "full, economic, cost-effective potential" should be viewed as the measures that can be implemented in a cost-effective manner. Other market barriers, besides cost, may impact the ability to achieve energy savings targets. In the interim, based on

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[2] ACEEE state scorecard https://aceee.org/press/2018/10/aceee-2018-state-energy-efficiency

ACEEE state policy database https://database.aceee.org/state-scorecard-rank

[3] https://aceee.org/press/2018/10/aceee-2018-state-energy-efficiency

achievable energy savings set forth in PSE&G's CEF-Energy Efficiency filing, the Company believes that the energy efficiency savings targets set forth in the Act are reasonable, and should be used as initial targets that utilities need to achieve subject to adjustment pursuant to the Act.

**Question No. 3**: *What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?*

**Response**: As noted above, the utilities should operate the energy efficiency programs in their respective service territories. Given that each New Jersey utility is accountable for achieving the targets in the Act, they should each have the flexibility to implement their own program designs with the Office of Clean Energy's ("OCE") oversight to ensure the programs are implemented cost effectively and that best practices can be shared statewide. The OCE's knowledge of energy efficiency programs and regulatory activities can be best utilized by placing the OCE at the head of energy efficiency policy across the state, and performing roles related to standard setting, oversight, maintaining technical resource manuals, reviewing cost effectiveness, and workforce development to support energy efficiency programs. This would entail OCE moving away from the direct administration of programs and the management of contractors that deliver energy efficiency services, which are roles that are more appropriate for the utility. Beyond implementing, executing, and managing programs, utilities would also perform functions like program design, education and outreach, vendor management, delivery of services, and customer service.

This focus on oversight, planning, and evaluation would give the OCE the vital task of assuring that all customer segments across the State have access to beneficial, cost-effective energy efficiency programs and incentives. This task will become more relevant and need enhanced oversight as New Jersey increases its commitment to energy efficiency.

**Question No. 4**: *How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?*

**Response**: Once the best practices identified in response to Question No. 1 are in place, the path toward New Jersey's energy efficient future begins with a diverse and comprehensive suite of programs that incorporate leading design principles from other states. The programs should reach all customers, especially low and moderate income households. All programs should follow some basic design principles to allow for maximum energy savings. These principles include:

- **Flexible Program Design:** Leading program designs, including those used by National Grid in Massachusetts and DTE in Michigan, enable flexible incentives that can be adjusted to respond to changing market conditions, foster greater program participation, manage budgetary constraints, and support continuous improvement. This principle can also carry over to the design of the program, ensuring that opportunities to achieve more efficient program delivery can be pursued.

- **Technology Solutions:** Most leading-edge energy efficiency programs rely heavily on advanced technology solutions that provide value to customers and create the seamless experience that is desired by participants. Examples include online, utility-branded marketplaces that offer efficient products, automatically confirm customer eligibility, and provide instantaneous rebates. Another example is sophisticated customer behavior analytics solutions that can be used to provide Home Energy Reports and online audit tools to enable energy savings.

- **Long Term Solutions:** Programs should be designed in a way that allows them to scale over time, without disruptive shifts in funding. To help achieve this, programs should run for longer windows (six years, as proposed in CEF-Energy Efficiency) for greater certainty, allowing the utilities and other market participants to invest in long-term solutions for energy efficiency in New Jersey.

In addition to these program design factors, re-evaluating energy efficiency targets in accordance with the Act, assessing the cost-benefit of programs (as described in the answer to Question No. 8), and implementing performance incentives (as described in the answer to Question No. 11), will help ensure low-cost delivery of energy efficiency programs.

**Question No. 5**: *What is the best way to minimize administrative costs and avoid duplicative administrative structures?*

**Response**: The best way to minimize administrative costs and avoid duplicative administrative structures is to transition to a model where utilities are executing and managing the energy efficiency programs. Utilities can minimize administrative costs by recognizing efficiencies across their portfolios of programs, tailoring services to customers in their territory, cross-marketing with other utility offerings, leveraging utility-held data to enhance customer-focused solutions, and employing advanced technology solutions to automate functions like eligibility and rebate processing.

**Question No. 6**: *What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?*

**Response**: To effectively transition the administration of programs from the OCE to the utilities, the first step should be a series of transition meetings between the utilities and the OCE staff. These meetings should cover expansive topics, including dates when OCE will cease offering programs within each utility territory and when each utility will begin offering the new proposed programs, as well as the solidification of a prudent transition plan. Other topics should include coordination of marketing and outreach efforts to assure an effective and orderly switchover, discussion of best practices, opportunities for statewide consistency, and planning on how the new programs will be administered. The OCE would assure that these items conform to the State's energy goals, are consistent with the OCE's ongoing operations, and incorporate OCE's input based upon recent experience.

Another important topic of discussion will be the transfer and onboarding of contractors and contractor services. The utilities should work with the OCE to coordinate with market vendors to ensure they are able to enroll and participate in the utility programs as program partners and allies and can provide continuity of program availability to all customers. Leveraging utilities' unique relationships with their customers alongside the competitive marketplace would not only provide customers with best-in-class service, but will also help to drive the energy services economy and promote job growth and small-business success. The transition plan referenced above should outline the specific transition tasks and milestone dates.

**Question No. 7**: *What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommended for sharing that data?*

**Response**: Data analytics are a foundational element of energy efficiency programs. As stated by the ACEEE, "access to energy usage data is critical to various parties working on energy efficiency".[4] Utilities are at an inherent advantage when it comes to data, given their access to customer usage and account-level data. Advanced metering infrastructure, as proposed in PSE&G's CEF-Energy Cloud filing, BPU Docket No. EO18101115, greatly enhances the data analytics capabilities that provide value for customers.

The most important factor behind maximizing the use of consumer data is to allow utilities, which hold the data, to implement, execute, and manage energy efficiency programs. Utilities have the subject matter expertise required to ensure effective and appropriate use of customer data to achieve strong participation by all customers. Also, with robust funding available for behavioral and data analytics programs, utilities can implement solutions to analyze data for consumption trends and help customers reduce their energy usage. PSE&G is currently running a program that uses data analytics to produce Home Energy Reports, and has proposed an enhancement of this initiative in its CEF-Energy Efficiency filing.

Lastly, any data that is held by the utilities and shared in any manner should follow cybersecurity and data privacy best practices, and use of customer data should be consistent with existing law. PSE&G would be happy to share in any best practices discussions regarding cybersecurity and data privacy issues related to customer data.

**Question No. 8**: *What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?*

**Response**: The approach for evaluating the cost effectiveness of new energy efficiency programs in New Jersey is also an important aspect of achieving the scale and energy savings impact required in the Act, which states that cost benefit analyses should be performed "considering both economic and environmental factors". N.J.S.A. 48:3-87.9(d)(2).

Of the five cost-benefit tests historically used for New Jersey programs, only the Societal Cost Test ("SCT") considers both economic and environmental benefits. The SCT provides the

[4] ACEEE "Improving Access to Energy Usage Data", accessible at: https://aceee.org/sector/local-policy/toolkit/utility-data-access

most comprehensive approach to determining cost effectiveness and should be the primary measure used to determine the merits of energy efficiency programs in New Jersey. None of the other four tests quantifies the environmental benefits and economic impacts, and several other states such as New York and Vermont already use the SCT as their primary test.

PSE&G believes that the SCT, or an equivalent test that includes environmental and economic benefits, should be the primary measure of cost effectiveness. From a governance perspective, the Board should use the SCT metric to evaluate the cost-effectiveness of energy efficiency programs, and should provide utilities the flexibility to manage investment and administrative budgets to best achieve their goals.

**Question No. 9**: *What should the membership of the Independent Advisor Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?*

**Response**: Pursuant to the Act, the Board is to "establish an independent advisory group to study the evaluation, measurement, and verification process for energy efficiency and peak demand reduction programs, which shall include representatives from the public utilities, the Division of Rate Counsel, and environmental and consumer organizations, to provide recommendations to the board for improvements to the programs." N.J.SA. 48:3-87.9(f)(1). This group should be a forum for discussing energy efficiency topics and program evaluation, which will complement the role of the BPU in approving utility energy efficiency proposals. The group should also review the annual filings from each utility for best practices in achieving energy savings and cost-effectiveness, and ensure that those best practices are shared among the utilities.

**Question No. 10**: *How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc. that may contribute to meeting savings targets be factored into a utility's savings targets, QPI, and performance incentives?*

**Response**: Any savings targets established specifically for non-utility sources should be calculated and tracked separately from utility savings targets. Any such non-utility targets should be kept at a minimal amount, since utilities are best suited to run energy efficiency programs and are held accountable under the Act for meeting the savings targets. Any savings targets for non-utility sources that are not achieved should not be held against a utility when assessing whether the utility has complied with the required electric or gas reduction targets, and savings from non-utility sources should not be factored into QPIs or performance incentives. Lastly, full revenue decoupling for utilities, such as the GEM, should be implemented so that utilities are not penalized by energy savings from non-utility sources.

**Question No. 11**: *How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?*

**Response**: Performance incentive mechanisms should be established while evaluating

investment programs proposed by utilities to meet their obligations under the Act. The Act obligates New Jersey utilities to implement programs to cost-effectively achieve energy efficiency targets. In the structure outlined in the Act, utilities will make investments in energy efficiency and earn a return on equity ("ROE") on the amount invested. The Act envisions that adjustments may be made to the utility's ROE for the program based on achievement of energy savings targets. N.J.S.A. 48:3-87.9(e)(4). Performance incentives based on ROE are advantageous because "they allow a rate of return for demand-side investments in a manner similar to traditional infrastructure investments, which helps to level the playing field for energy efficiency."[5] A similar approach is used by ComEd and Ameren in Illinois.[6]

PSE&G proposes a sliding scale of positive or negative adjustments ranging from +/- 100 basis points on allowed ROE based upon a combination of factors, including: (a) achieving the Act's targeted energy efficiency savings; (b) meeting cost-effectiveness targets; and (c) achieving specific goals (such as savings for low-moderate income customers). The adjustments for amounts higher or lower than the allowed ROE would be made through annual true-ups of the cost recovery clause. After five years, the performance metrics should be re-evaluated, with input from the utilities, to allow for modifications as more experience is gained with the programs.

**Question No. 12**: *Under N.J.S.A. 48:3-88(3)(e), each electric and gas public utility must file an annual petition with the Board to demonstrate compliance with energy efficiency and peak demand reduction programs, compliance with targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs. What information should these annual petitions include?*

**Response**: In addition to the documents currently submitted for green program cost recovery filings, the annual petitions should include: (1) energy savings achieved vs. targets; (2) key performance indicators achieved vs. targets; and (3) program evaluation reports that include cost-benefit results. This information should provide results for each year and should be provided by mid-year of the subsequent year.

Once again, PSE&G appreciates the opportunity to participate in this process and provide these responses. We thank the Board for its consideration of PSE&G's submission.

Respectfully submitted,

Matthew M. Weissman

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[5] American Council for an Energy-Efficient Economy (ACEEE) "Can utilities incorporate energy efficiency into their core business? With performance incentives, they can", accessible at: https://aceee.org/blog/2018/12/can-utilities-incorporate-energy

[6] American Council for an Energy-Efficient Economy (ACEEE) "Snapshot of Energy Efficiency Performance Incentives for Electric Utilities", accessible at: https://aceee.org/sites/default/files/pims-121118.pdf

February 15, 2019

***Via Electronic Mail (energyefficiency@bpu.nj.gov)***

Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue
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Trenton, NJ 08625

***Re: Implementation of P.L. 2018, c. 17 regarding the establishment of energy efficiency and peak demand reduction programs***

***Attention: BPU Docket No. QO19010040***

Dear Ms. Camacho-Welch:

On behalf of Sierra Club and its 17,339 New Jersey members, we submit the following responses to a subset of questions raised by the Board of Public Utilities (BPU) in its solicitation dated 1/22/2019 in Docket No. QO19010040, regarding implementation of energy efficiency and peak reduction programs. Efficiency and peak reduction are of utmost importance to our members as both are critical to meeting New Jersey's energy decarbonization objectives in a cost effective and low-impact way. We urge BPU to develop and finalize a rulemaking as quickly as possible.

**1. What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?**

> Massachusetts, Maryland and Rhode Island have good cost-effectiveness testing methodologies. In particular, Rhode Island has developed its own test that has several exemplary features.[1]

[1] See Vermont Energy Investment Corp./Optimal Energy Consultant Team, Cost-Effectiveness Report: National Grid's 2018 Energy Efficiency and System Reliability Procurement Plan, submitted to the State

Pennsylvania's experience with peak demand reduction is important to learn from. It began with a legislative mandate to achieve specific energy reduction targets during the year's 100 hours of highest demand. This proved to be very problematic and not cost effective, and was abandoned after the first phase of the program. The third phase featured a different construct, requiring the availability of demand response capacity and thresholds for deployment, with clear criteria for when the resources would be deployed.[2]

**2. How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?**

The most common problem with cost-effectiveness testing is undervaluing the many non-energy benefits and avoided costs of efficiency. If the Board defines a test with a narrow set of inputs, efficiency potential will be underestimated, investment will be unduly limited, and New Jerseyans will suffer from excess energy costs.

Traditional cost effectiveness tests like the Total Resource Cost (TRC) test address the question of whether the costs to the utility and to the program participant are reduced by a particular efficiency measure or program. The TRC is an inappropriately narrow test because it fails to account for broader societal benefits from reduced energy consumption, which are very real, and many of which are readily quantifiable. The TRC thus excludes a range of efficiency programs that are cost effective in a broader sense.

Sierra Club supports the use of a Societal Cost Test (SCT) which addresses the question of whether total costs to society will be reduced when a particular investment is made. For example, an SCT can quantify the avoided environmental and health costs from reducing carbon, other air, and water pollution from fossil-fueled power plants. These types of tests are becoming increasingly common, with 19 states now accounting for at least one health or environmental outcome in their analyses according to ACEEE.[3]

We recognize that a fuller, truer accounting of costs and benefits is a more complex analysis, and one that should be tailored to meet New Jersey's specific policy goals. The National Standard Practice Manual (NSPM) for Assessing Cost-Effectiveness of Energy Efficiency Resources[4] is a guide that can help the Board develop a test that will ensure optimal investment in efficiency that realizes multiple policy goals. The NSPM includes a fairly robust stakeholder process, which we support, but we do not want the process to

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of Rhode Island Energy Efficiency & Resource Management Council (Nov. 17, 2017), at 5-6, available at http://rieermc.ri.gov/wp-content/uploads/2017/11/cost-effectiveness-report-2018_v3_2017-11-08.pdf

[2] PA Public Utility Commission, Docket No. M 2014-2424864, Final Implementation Order, beginning at p15. Available at: http://www.puc.pa.gov/filing_resources/issues_laws_regulations/act_129_information/energy_efficiency_and_conservation_ee_c_program.aspx

[3] Kubes, C. 2018. Cost-Effectiveness Tests: Overview of State Approaches to Account for Health and Environmental Benefits of Energy Efficiency. Available for download at: https://aceee.org/topic-brief/he-in-ce-testing.

[4] Available at: https://nationalefficiencyscreening.org/

delay implementation of the EERS. Therefore we recommend the Board commit to utilizing the NSPM to develop a customized SCT for NJ before program year three of the EERS. Prior to that, the Board should model its initial cost effectiveness test after those of states which account for health and environmental benefits, such as Colorado and Vermont.

Once an appropriately comprehensive cost-effectiveness test has been adopted, the BPU should commission a statewide evaluation of all cost-effective potential, with results broken down by utility territories and customer sectors. This study should be updated periodically to account for technological and economic changes, as well as implementation progress. The BPU should then consult stakeholders, including the Independent Advisory Committee, and the public on an appropriate timeframe in which to require utilities to achieve all cost effective efficiency. This will be the basis for setting annual percentage targets over and above 2%.

**3. What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a statewide approach, and how can they be overcome?**

Because the statute specifically requires public utilities to reduce energy consumption within their territories, they should be responsible and accountable for developing and implementing plans to meet the targets identified in the statute. The BPU's primary role would be oversight and coordination of utility programs. The statewide Clean Energy Program (CEP) could still be continued, but in a reduced role, and there would have to be clear lines delineating the responsibilities of utilities and those of the CEP. The BPU should work to ensure as much consistency as practical among the utility programs, and CEP could serve as a single access point for information by any state resident or business seeking information about efficiency programs, regardless of their utility territory. CEP could identify and fill gaps in utility programs.

For example, the legislature directed the BPU to adopt electric and gas efficiency programs "in order to ensure investment in cost-effective energy efficiency measures, ensure universal access to energy efficiency measures, and serve the needs of low-income communities." Low-income efficiency programs are generally regarded as more difficult and costly for utilities to implement, but at the same are the most important programs with which to achieve universal access so as to reduce rather than increase the energy burdens of customers in this segment. Designing supplemental programs for low-and moderate-income customers and coordinating with utilities to serve this segment as cost-effectively and thoroughly as possible should be a special focus of the CEP going forward.

As utility programs ramp up and become more robust, the role of the CEP could transition away from a supplemental efficiency provider to a greater focus on using

Societal Benefit Charge funds for enabling other types of clean energy investments, such as renewable energy, building and vehicle electrification, and storage.

**4. How can these programs be delivered at the lowest cost to ratepayers, while also providing optimal ease of use and customer service and maximizing market utilization?**

To ensure that efficiency programs are delivered at the lowest possible cost to consumers, we need to look beyond the direct rate impacts of recovering program costs. Large-scale efficiency programs will reduce both peak energy demand and energy consumption over time. These reductions have the potential to suppress both wholesale energy prices and capacity prices in PJM's markets.

Reduction in peak energy demand leads to significantly greater savings to program non-participants than reduction in off-peak demand.[5] Therefore, the Board should either require or incent utilities to achieve a minimum percentage of their total savings target during peak demand hours as designated by PJM.[6] It may also be beneficial to explore targeting efficiency and peak demand reduction investments in geographic load pockets, in order to reduce congestion costs and allow deferment of system upgrades that would otherwise be necessary.

The Board should also require planned efficiency resources to be bid into the PJM capacity market. Of the planned savings that meet PJM's eligibility criteria for the base residual auction in each program year, at least 75% should be bid into the PJM capacity market by the utilities, thus leaving a margin of error similar to what other states have used. This will help drive down the cost of grid capacity, spread benefits to non-participants, and further offset program administration costs.

To ensure ease of use on the residential side, financial incentives should be as simple as possible with little effort required. Instant rebates on lighting and appliance purchases as opposed to mail-in rebates are effective. For more comprehensive measures with high upfront cost, on-bill financing could remove the significant barrier of shopping for and securing a loan. On the other hand, programs for large commercial and industrial customers should be as flexible and customizable as possible, making them more relevant to large energy users "cookie-cutter" programs.

**5. What is the best way to minimize administrative costs and avoid duplicative administrative structures?**

This should be a primary area of focus for the Independent Advisory Committee. There should be a transition from the CEP as the primary party responsible for program

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[5] See Synapse, Energy Efficiency: Rate, Bill and Participation Impact (Sept. 24, 2013), available at http://aceee.org/files/pdf/conferences/eer/2013/5C-Woolf.pdf

[6] Peak coincidence factors are readily determined for a number of common efficiency measures, and can be included in the Technical Reference Manual for consistency in plan development and evaluation.

delivery to utilities serving in that role. The CEP and utilities should conduct joint planning with input from the Committee. As part of this process, utilities should identify market segments that are more difficult for them to reach, and should work with the CEP and the Committee to fill gaps and improve customer access.

**8. What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?**

The cost-benefit analysis must include non-energy societal benefits such as avoided health and environmental costs from reduced air and water pollution, and climate stabilization benefits from avoided carbon dioxide and methane emissions. Avoided climate impacts can be most comprehensively estimated by using the 2016 estimates from the federal government's Interagency Working Group on the Social Cost of Greenhouse Gases.[7] Since New Jersey is poised to rejoin RGGI, the cost of CO2 emission allowances will once again be factored into the price of electricity. However, since RGGI allowance prices will be significantly lower than estimates of the social cost of carbon (SCC) for the foreseeable future, much of the SCC will have to be accounted for separately from the avoided cost of electricity generation. As there are considerable methane leaks throughout the natural gas supply chain, and methane is a potent greenhouse gas particularly in the short term, the social cost of methane should also be accounted for in cost effectiveness tests.

The effect of wholesale electricity price suppression must also be quantified and accounted for. When marginal generating units are no longer necessary and taken offline, the marginal price for electricity drops. This price suppression is particularly important as it directly lowers bills for participants and non-participants alike.[8]

The US Environmental Protection Agency offers a free tool for estimating the health and economic benefits of avoided emissions from efficiency and clean energy programs called the CO-Benefits Risk Assessment (COBRA) Health Impacts Screening and Mapping Tool,[9] which may prove useful for BPU's cost-benefit analysis.

Some additional key considerations for cost-effectiveness testing are as follows:

- Incorporation of avoided costs of complying with climate goals (efficiency is generally less expensive than other emission reduction strategies);

[7] Detailed guidance for on the use of the social cost of carbon in state policy is available in: Paul, I, et al. 2017. The Social Cost of Greenhouse Gases and State Policy: A Frequently Asked Questions Guide. Institute for Policy Integrity, New York University School of Law.
[8] State and Local Energy Efficiency Action Network (2015). State Approaches to Demand Reduction Induced Price Effects: Examining How Energy Efficiency Can Lower Prices for All. Prepared by: Chris Kramer, Emily Martin Fadrhonc, Charles Goldman, Steve Schiller, and Lisa Schwartz of Lawrence Berkeley National Laboratory.
[9] Available for download at: https://www.epa.gov/statelocalenergy/co-benefits-risk-assessment-cobra-health-impacts-screening-and-mapping-tool

- Fuel neutrality; even within electric utility programs, evaluation should be based on units of energy reduced, not just electricity reduced (this enables beneficial electrification);
- The discount rate should be closer to the societal discount rate, rather than the utility's weighted average cost of capital;
- Cost-effectiveness testing should occur at the portfolio or sub-portfolio (i.e., residential, C&I) level rather than at the measure level. This enables some experimentation with cutting edge measures.

**9. What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?**

The statute requires public utilities, the Division of Rate Counsel, and environmental and consumer organizations to be represented on the Independent Advisory Committee (IAC). In addition to these representatives, the Board should invite third party efficiency program experts from one or more of the following organizations: American Council for and Energy Efficiency Economy (ACEEE), Northeast Energy Efficiency Partnership (NEEP), and Regulatory Assistance Project (RAP). We also recommend inviting efficiency contractors and program administrators with experience delivering on EERS requirements to provide representatives.

The IAC should be a permanent body that meets regularly to discuss all aspects of implementing efficiency programs. In Oregon, for example, utilities rely on strong advisory committee(s) that meet at least quarterly to discuss program design and delivery, program evaluation and verification of savings, marketing materials and strategy. These advisory committees are comprised of all relevant stakeholders, including the regulatory staff, consumer and environmental advocates and industrial customers.

In New Jersey, a primary responsibility of the IAC should be to flesh out the details of the transition of program delivery from the CEP to utilities, as well as how the CEP can effectively supplement and coordinate utility program offerings.

**10. How should savings from the Clean Energy Program, existing utility programs, building code measures, appliance efficiency standards, other State sponsored EE or peak reduction programs, etc., that may contribute to meeting savings targets be factored into a utility's savings targets, QPIs, and performance incentives?**

P.L. 2018 c.17 recognizes that enforceable targets for utilities cannot simply be set by calculating 2% (for electric) or 0.75% (for gas) of the average consumption of the previous three years, as there are too many factors that are outside of a utility's control that impact consumption:

> *"In establishing quantitative performance indicators, the board shall use a methodology that incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties determined pursuant to subsection e. of this section and section 13 of P.L.2007, c.340 (C.48:3-98.1) are based upon performance, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources."*

In practice, directly identifying and accurately quantifying all these exogenous factors in order to isolate the impacts of utility efficiency investments from observed energy consumption is an extremely complex, arduous, and inexact undertaking. It is preferable and more accurate to adopt a measurement and verification protocol based on a Technical Reference Manual (TRM).[10] The TRM includes a combination of deemed savings for common efficiency measures, and protocols for calculating expected savings from custom measures. A TRM allows for the direct calculation of energy savings resulting from utility investments that are completely independent of the exogenous variables cited in the statute. It therefore meets the requirement of the statute without actually having to perform the prescribed analysis.

The law also states:

> *"A public utility may apply all energy savings attributable to programs available to its customers, including demand side management programs, other measures implemented by the public utility, non-utility programs, including those available under energy efficiency programs in existence on the date of enactment of P.L. 2018 c.17, building codes, and other efficiency standards in effect, to achieve the targets established in this section."*

It would be unfair to either penalize or reward a utility based on the performance of non-utility efficiency programs, even though the statute allows them to be factored into the target setting. Therefore, Sierra Club supports the establishment of two separate targets within each utility service territory. "Utility targets" and associated performance benchmarks should be based solely on what each utility itself controls. This should include both new and existing programs. A second "overall target" should be set that is the sum of utility and non-utility programs, such as building codes, federal lighting and appliance standards, weatherization programs, and investments by the Clean Energy Program within a utility's service territory.

The Overall Targets must be at least 2% (electric) or 0.75% (gas) of the baseline average per the statute (or higher if the Board identifies higher levels of cost-effective efficiency potential). However, the performance of the utility, and the assessment of

[10] Pennsylvania has a robust TRM that it has refined multiple times since 2008 through its implementation of an EERS known and Act 129. Because it is adjacent to New Jersey and has a very similar climate, the savings factors included should be broadly applicable to New Jersey, and it should consulted.

penalties and crediting of incentives should only be based on its ability to achieve or exceed the Utility Target over which it has control.

Utilities should be allowed to propose in their portfolios measures that augment or enhance non-utility efficiency programs. For example, if a utility intervention can be demonstrated to improve the building code compliance rate, the utility should be able to include that savings delta in its portfolio.

**11. How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?**

The threat of penalties is critical to ensuring that utilities meet the minimum targets set by the legislature and the BPU. Incentives are necessary to give utilities a reason to go beyond the bare minimum requirement. Sierra Club is particularly interested in incentives that reward utilities not only for exceeding the overall efficiency target, but for maximizing participation rates and measurable savings from LMI customers to reduce energy burdens, and contributing to efficiency market transformation through successful deep retrofit programs.

Respectfully Submitted,

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February 15, 2019

Ms. Ada Camacho-Welch, Secretary
Board of Public Utilities
State of New Jersey

Via e-mail to energyefficiency@bpu.nj.gov

**Re: DOCKET NO. QO19010040**

Dear Ms. Camacho-Welch:

Please find attached VEIC's comments on implementation of New Jersey's Energy Efficiency and Peak Demand Reduction Programs. Thank you for the opportunity to provide comments at this critical time.

For 32 years, VEIC has been a national and international leader in sustainable energy planning, program design, policy, evaluation, research, and implementation. Driven by our mission to reduce the economic and environmental costs of energy use, we have hundreds of clients for whom we design and evaluate sustainable energy programs.

VEIC has deep experience in New Jersey in particular. VEIC provided consulting expertise to the utility collaborative from 2000-2003, and to a large-scale project on achieving the 2020 Energy Master Plan goals in 2009. From 2007 through February 2016, VEIC designed the New Jersey Clean Energy Program's (NJCEP) residential energy efficiency programs and implemented the renewable energy programs (as part of the residential Market Manager team). In that role, VEIC created the first generation of NJCEP programs, updated them to increase savings and cost-effectiveness, and facilitated the Leadership Team's activity, which focused on improving results and clarifying policy aims.

Although NJCEP has made significant accomplishments, New Jersey has the opportunity to become a national leader in the clean energy space. We look forward to watching the Board's progress in advancing Governor Murphy's laudable vision on this persistently important topic.

Should you have any questions about our comments, please contact Emily Levin, VEIC's Managing Consultant in Energy Services, at elevin@veic.org.

With best wishes,

Mary Sprayregen
Director, Policy & Public Affairs

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# Comments on Implementation of New Jersey's Energy Efficiency and Peak Demand Reduction Programs

1. *What are some best practices for energy efficiency and peak demand reduction programs from leading states (Massachusetts, Rhode Island, California, Illinois, etc.) – including, but not limited to, administrative structures, performance incentives, cost-benefit analyses, decoupling policies, and evaluation – that New Jersey can implement to reach its energy efficiency and peak demand reduction goals?*

VEIC recommends that New Jersey examine lessons learned in Massachusetts and Rhode Island. Both states are moving toward (or have already adopted) practices that incorporate the following principles:

- A decoupled utility environment
- Proactively invest in emerging technologies
- An increased emphasis on reducing energy consumption at peak times
- Integrated efficiency and demand management programs
- Connecting efficiency and demand management program targets with state energy goals (for example, opting for carbon goals, rather than setting goals only in terms of kWh reduction)
- A fuel-neutral energy efficiency goal, or other framework that explicitly allows utility programs to incentivize fuel switching, if it contributes to achieving state energy goals
- Providing performance incentives for investor-owned utilities (for example, allowing shareholders to earn a return based on program performance against planned metrics).

2. *How should "full economic, cost effective potential" be defined in terms of the energy efficiency targets to be established by the Board?*

VEIC recommends using the National Standards Practice Manual to determine which definitions of *cost effectiveness* are most suitable for achieving New Jersey's goals.

3. *What markets should be served statewide? What programs should have consistent incentives, eligibility criteria and rules across all service territories? Should the programs be delivered by a single statewide implementer? What are the barriers to implementing a state-wide approach, and how can they be overcome?*

Generally speaking, a statewide entity should play the upstream and midstream

delivery role of transforming a market and engaging the supply chain (for example, with heat pumps or LED technology), whereas the utilities should provide the direct interface with customers and provide incentive payments to customers.

4. *How can these programs be delivered at the lowest cost to rate payers, while also providing optimal ease of use and customer service and maximizing market utilization?*

There are several ways to optimize programs at the lowest cost:

- Ensure metrics use lifetime energy savings and cost-effectiveness criteria
- Consider a metric for comprehensiveness—for example, a metric for depth of savings for target customers, or number of projects with multiple measures
- Incorporate a financial leveraging requirement (customer or third-party dollars invested)
- Offer robust midstream and upstream programs to achieve economies of scale and influence markets with lower incentives per unit

5. *What is the best way to minimize administrative costs and avoid duplicative administrative structures?*

If feasible, New Jersey should require a statewide administrator for market transformation programs, such as midstream and upstream programs and codes and standards. A consistent statewide approach to engaging manufacturers, distributors, and retailers will reduces market confusion. It will also provide economies of scale in comparison with a model in which every utility designs and runs its own market transformation programs.

6. *What considerations should be made during a transition period that would result in as few disruptions as possible to the market place?*

Requests for proposals issued by utilities for program implementers should allow flexibility for implementers to bid on single or multiple programs. This will invite implementers to suggest ways to streamline program delivery or enhance customer service, while supporting a gradual transition to new structures.

7. *What is the best way to maximize the use of consumer data held by the utilities, and what procedures are recommend for sharing that data?*

Through our own experience in implementing efficiency programs, VEIC has learned the following lessons for maximizing the use of customer data:

- Utilities should leverage the informational campaigns that accompany smart meter deployment to promote energy savings opportunities enabled by the new technologies.

- Regulators and utilities should ensure that advanced metering infrastructure (AMI) deployments include timely feedback and sufficient granularity to empower customers to adjust consumption patterns as a method for lowering bills.
- Efficiency programs should consider how the type of meter or device network might affect customer experience and efficiency programs' ability to achieve program goals, and design pilots to explore how and through which channels to provide customer value on different network types.
- Efficiency stakeholders should be engaged early on in the selection and implementation of data standards and infrastructure—to simplify and standardize data collection, determine processes for documenting a full range of use cases, and ensure that the data collected will be used and useful. Definitions used in the data warehouse should be clearly documented and used consistently by all stakeholders.
- The Board should determine clear ownership and access policies that facilitate demand-side programs and services to maximize customer benefit, particularly around data collection, the data warehouse, and customer portals. Board policy should also specify how data sharing is tracked, and how that information is communicated to the customer.
- Efficiency programs should explore opportunities to leverage AMI to support customer energy management through disaggregation of end uses, customized messaging, and improved technical assistance. Stakeholders can also use AMI to target specific customers and market segments with common energy use patterns or savings opportunities.
- Efficiency programs can also consider developing new programs to capture savings from operational and behavioral measures, including pay-for-performance approaches that base incentives on metered energy savings, rather than on deemed savings estimates.
- Utilities and efficiency programs should conduct pilots to test new program designs and services enabled by AMI and evaluate different technology and engagement options, to ensure their services are truly adding value for customers.
- Utility AMI proposals should be approved only after the filing of an adequate plan for how the new AMI capabilities will support energy efficiency.
- It is important that an advisory committee be established to monitor the implementation of the plan.
- Regulators should establish a broad and robust cost-benefit framework for evaluating AMI deployment; this framework must include consideration of potential benefits to customers.
- Policies should aim to maximize total economic benefit in each aspect of AMI deployment, and appropriately assign the risk of the capital investment of AMI to the parties that stand to profit, while protecting ratepayers.

8. *What data, assumptions, methodology, and considerations (e.g., non-energy benefits) should be used to perform cost-benefit analyses?*

Please see the VEIC response to Question 2. Ultimately, cost-benefit analyses should include *all* costs and benefits, including non-energy impacts. All too often, efficiency program cost-benefit screening accounts only for non-energy costs and does not include measurable benefits such as health and productivity.

9. *What should the membership of the Independent Advisory Committee be? What is the proper role of the Independent Advisory Committee? What existing models or best practices should the Board consider in establishing the Independent Advisory Committee?*

VEIC recommends reviewing the stakeholder advisory models in Massachusetts and Rhode Island. In Massachusetts, the Energy Efficiency Advisory Council (EEAC) provides robust oversight and guidance to the energy efficiency programs delivered by multiple utilities and program administrators. In Rhode Island, the Energy Efficiency Resource Management Council (EERMC) oversees the programs administered by the sole utility, National Grid. The EEAC and EERMC contribute to program planning at every stage and report annually to the regulatory commission and legislature on results. In Rhode Island, the EERMC has an annual budget of approximately $780,000, or 0.68 percent of total efficiency program spending.

10. *How should performance incentives and penalties be implemented? What level of information will be needed? How should they be collected/paid, with what frequency and when should they begin implementation?*

Performance incentives should adhere to the following best practices. The incentives should:

- Be based on third-party verified performance
- Be scaled to provide higher incentives with higher performance
- Encourage responsible stewardship of ratepayer funds
- Be based on metrics that are clear, well-defined, and transparent
- Apply to multiple metrics to drive results that align with state goals

New York's Earnings Adjustment Mechanism (EAM), which offers incremental performance incentives for utilities, is a useful strategy for New Jersey. An EAM allows utilities to earn a performance incentive on investments that achieve state goals, such as greenhouse gas reductions, energy efficiency, and peak reduction. New York utilities' EAMs also offer models for incorporating savings from market transformation initiatives such as codes and standards into utility savings targets (see question 10).