COMMENTS BY THE HOME PERFORMANCE COALITION
BEFORE THE NEW JERSEY BOARD OF PUBLIC UTILITIES
OCTOBER 12, 2018

IN THE MATTER OF THE NEW JERSEY 2019 ENERGY MASTER PLAN
Public Stakeholder Comments

As leaders in the residential energy efficiency industry, the Home Performance Coalition (HPC)[1] respectfully responds to the September 14, 2018 request by the New Jersey Board of Public Utilities (NJ BPU) to provide feedback on Discussion Points, addressed here by number as presented, in order to support New Jersey's development of its 2019 Energy Master Plan and the strategic vision for the state's role in "development, use, distribution, and management of energy." Where a specific question is addressed, we note the number and question. This response links to several studies and resources to assist the BPU staff. In addition, we appreciate being able to offer comments not specifically requested and we place those under the relevant discussion point topics.

General

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. We recommend this resource to support the NJ BPU in their efforts to address clean energy through energy efficiency. The report addresses the important role of that energy efficiency can play in: incentives and financing, real estate transactions, data standards and data access, and utility policy changes.

1) What energy efficiency, peak demand reduction, and demand response programs and systems will assist in helping keep energy affordable to all customer classes, especially as technology advances in areas such as electric vehicles or heating and cooling, which will potentially increase electric energy usage.

Energy efficiency residential retrofit programs and demand response programs lower peak demand where there is the most stress on the utility grid. As the BPU recognizes, the utilities must plan to meet their peak needs, thus efforts to lower the predicted daily peaks in the grid lowers the need to purchase higher, marginal cost power and reduces the need for new generation and transmission and distribution costs. Energy efficiency and demand response are an important part of utility load management to reduce strains and costs to the grid. HPC

[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.

encourages the NJ BPU to incorporate residential retrofit programs and peak reduction and load management strategies into the EMP. By reducing peaks and improving energy efficiency, the overall cost of managing and maintaining the grid is moderated to the benefit of all ratepayers.[2]

The role of equity in energy efficiency is a vital consideration in energy policy. As the NJ BPU considers technology advances that may increase electricity usage, it is important to review the low-income weatherization programs and how these can be expanded to help low and moderate-income families reduce their utility bills. Last year, HPC released Weatherization and Home Performance: Recommendations for Mutual Success and Collaboration. The report aimed to identify opportunities and barriers in creating a more unified set of cost-effective residential energy efficiency programs for all income levels and to discuss the untapped potential for residential energy efficiency. As discussed in this report, there is also immense opportunity to provide sustainable jobs and new economic opportunities that will generate energy savings while reducing New Jersey's carbon footprint. Energy-efficient homes are also healthier homes providing an additional benefit, including health cost benefits, across customer classes. An energy efficiency market is evolving and policies need to evolve to take advantage of it. New Jersey could be a leader in building a strategy that works and brings together all of the stakeholders in residential energy efficiency to ensure equity and job creation in addition to pollution reduction, positive health impacts, and energy security that is tied to home energy upgrades.

Finally, as noted in the Policymakers Guide cited above, programs and mechanisms that also support low-cost funding and financing mechanisms such as Residential Property Assessed Clean Energy (PACE) and resilience or green bank funding of energy efficiency are important tools for homeowners. By utilizing low-cost financing, residents in the Garden State can utilize publicly or privately financed capital to upgrade their homes, thus helping secure the grid infrastructure while lowering their utility bills.

3) What are the key non-energy benefits associated with energy efficiency? How can their value best be considered in cost-benefit analyses?

Key non-energy benefits of energy efficiency

Health and environmental benefits are critical externalities that should be considered when the NJ BPU considers the non-energy benefits associated with energy efficiency. The health benefits associated with indoor air quality have been well-documented. Occupant Health Benefits of Residential Energy Efficiency, released in November 2016 by E4TheFuture, reviews national and international studies that demonstrate the high price of inefficiency homes. Energy efficiency home improvements lead to fewer asthma symptoms and emergency room visits in addition to better overall physical and mental health.

[2] Additional elaboration on the relationship between energy efficiency and grid resilience can be found in the 2018 ACEEE Sumer Study paper by Rodney Sobin et al, Energy Efficiency is Not Enough: Rethinking Building Energy Performance for Good Times and Bad.

Energy efficiency also reduces air pollution emissions, including greenhouse gasses that contribute to adverse climate change impacts, and "criteria" pollutants regulated under the Clean Air Act and NJ law. These criteria pollutants have direct impacts on human health and the ability of NJ to meet National Ambient Air Quality Standards (NAAQS). ACEEE's February 2018 report Saving Energy, Saving Lives: The Health Impacts of Avoiding Power Plant Pollution with Energy Efficiency addresses the health impacts of poor air quality and the benefits that could be shown across the country with a 15% reduction in annual electric consumption. ACEEE ranked the states based on the potential dollar value of avoided health harms and New Jersey was ranked 12th out of the fifty states.

While NJ policymakers are certain to be concerned for the health and safety of their citizens, NAAQS nonattainment could also represent additional costs to the state. Non-attainment could lead to additional environmental regulatory requirements that the state and utilities would need to address. Furthermore, such environmental concerns could constrain opportunities for industrial location and expansion.

NJ has been a leader, following Superstorm Sandy, in supporting energy resilience of critical facilities. The NJ BPU recognizes that increased energy efficiency lowers many other costs associated with energy use -- from water, waste water, and land impacts associated with energy extraction and power generation to reducing stresses on the grid that reduces the time for outages that support hospitals and emergency responders to allowing the grid to operate better through demand response and DER integration. All these non-energy benefits should be considered in evaluating programs and in the 2019 NJ EMP.

The need to reform New Jersey's Cost-Benefit Analysis

To address all the above non-energy benefits and more, HPC has been working closely with commissions and commission staff across the country to review their cost-effectiveness test procedures to ensure commissions have a clear picture of the impact energy efficiency has on ratepayers. In fact, the New Jersey Clean Energy Plan mentioned the need to review the cost effectiveness analysis (sec. 8.3, p.39). We support this proposal and Home Performance Coalition (HPC) respectfully requests that NJ BPU review the fundamental principles of the May 2017 The National Efficiency Screening Project's website provides details on the National Standard Practice Manual (NSPM) which provides an implementation guide for the reform. Furthermore, HPC recommends that the NJ BPU establish a stakeholder process to utilize the NSPM and develop a "New Jersey" test that incorporates New Jersey's energy policy goals and best meets the needs and values of the state. The NSPM will help the NJ BPU "test its test" and be sure that New Jersey's cost-effectiveness practices are based on sound economic principles as set forth in the NSPM

HPC believes the NSPM framework and its step by step approach would allow NJBPU an opportunity to determine whether its current cost effectiveness testing reflects New Jersey's own energy efficiency policies and program goals (including Executive Order 28), such as capturing the appropriate values for job creation and other non-energy benefits of energy efficiency programs.

The NSPM presents accounting procedures for applicable hard-to-monetize costs and benefits, with guidance on a wide range of fundamental aspects of cost-effectiveness analyses and the adequate consideration of all relevant costs and benefits for both the utility system and the non-utility system.

The NSPM builds and expands upon the decades old California Standard Practice Manual and provides current experience and best practices. The NSPM sets forth broad principles for accomplishing these goals:

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.

Current Example of Cost Benefit Test Application in New Jersey

One recent example of the application of New Jersey's cost effectiveness testing framework appears in the September 26, 2018 Verified Petition of Public Service Electric and Gas Company ("PSE&G"). In its Verified Petition, PSE&G applies the five forms of cost benefits analysis (CBAs)

required by the NJBPU's Minimum Filing Requirements (the Participant Cost Test, Program Administrator Cost Test, Ratepayer Impact Measure Test, Total Resource Cost Test, and Societal Cost Test) at APPENDIX E – COST-BENEFIT ANALYSIS RESULTS (see pages beginning on page 358 of 761).

This "application" of five cost effectiveness tests immediately raises the question of why five different tests are needed, and if so, do any of the five current versions of the California Manual tests appropriately reflect the current state of New Jersey energy policy goals? For example, as these five currently constructed cost effectiveness tests are applied (using the existing New Jersey Technical Reference Manual, which might also need to be updated) - has Executive Order 28 been fully incorporated into the cost effectiveness tests? The National Standard Practices Manual sets forth the process by which NJBPU can update and modernize its cost effectiveness testing framework to make certain that New Jersey's current energy, health, climate and economic development laws, policies and regulations are accounted for in at least one of its five mandated cost effectiveness tests.

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 a related step by step planning process into existing state approaches towards cost effectiveness testing. Arkansas, Washington, Rhode Island, Minnesota and West Virginia are five examples of states that have incorporated, or are in the process of reviewing, aspects of the NSPM into their state planning and regulatory review processes on cost-effectiveness. Brief descriptions of those five states' activities, other state based activities and references and testimony submitted on the NSPM in state proceedings appear at: https://nationalefficiencyscreening.org/state-references/.

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 answer to the question posed at Discussion Point #3. As NJBPU continues its planning and implementation process for the 2019 Energy Master Plan, HPC and other members of the National Efficiency Screening Project would be please to brief the NJBPU 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.

Technology

6) What advances in technology should be considered as part of a strategy to reduce energy consumption? What technologies could complement and advance existing energy efficiency efforts?

Any modern energy strategy must take into consideration new and emerging technologies, thus the evolving smart, grid-interactive technologies that are making buildings and facilities use energy more efficiently at the most cost-efficient times are vital to the 2019 NJ EMP. 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 make it up, 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 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 (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 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 report and its ten recommendations and incorporate smart technologies into the 2019 NJ EMP.

7) What are the intermediate timeframes and pathways to these new or enhanced technologies and energy efficiency and demand response systems?

New Jersey has been behind the curve on the implementation of advanced metering infrastructure (AMI). By 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. This would also support better integration of renewable energy, energy storage, and grid-interactive technologies.

In the PSE&G September 26 filing, they note the need for advancing smart metering and urge the NJ BPU to consider advancing the states metering infrastructure and corresponding programs that support using the collected data to benefit the ratepayers. We support PSE&Gs request that the NJ BPU advance smart meter deployment, and HPC recommends that the BPU prioritize the roll-out of smart meters for electricity and gas across the state.

8) How do we best utilize data analytics for energy efficiency?

Using advanced data analytics can help residential efficiency programs, or third-party energy management services, more precisely target consumers likely to benefit from energy efficiency improvements. Advanced data analytics can also support more precise and real time calculation of residential energy savings. Because data analytics both generate and leverage a large amount of data, particularly energy usage data, it is crucial for the NJBPU to support policies that reduce the expense and difficulty of data collection.

Home Performance Coalition urges NJBPU 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.

Home Performance Coalition also recommends that NJBPU 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.

Programs including Arizona Public Service (APS), PSE&G Long Island, and NYSERDA that have adopted the data standard have saved time and money through the automation of project review and quality assurance processes. Contractors have also benefited by being able to use a single software tool to generate a single report when working with multiple programs. For example, APS used HPXML to decrease its quality assurance administrative labor by 50 percent. Contractors working with APS also decreased administrative labor per project by 31 percent after the implementation of an HPXML software environment.

Using HPXML also leads to more consistent, high quality data about home energy upgrades. The ability to access low-cost, high quality data is crucial for supporting new EM&V protocols that offer greater consistency in predicted and realized savings, and for tracking and aggregating energy savings delivered through multiple New Jersey utility and non-utility programs.

Economic Growth and Workforce Development

As New Jersey reviews its benefit cost ratios for energy efficiency measures, the economic and business development impact of the energy efficiency business sector in New Jersey and its enormous potential for growth should be a top of mind consideration. As a market sector, energy efficiency has a lot to offer to New Jersey. According to the September 2018 Energy Efficiency Jobs in America report, energy efficiency, as a market sector, employed ***2.25 million Americans***, in whole or in part, in the design, installation, and manufacture of Energy Efficiency products and services, and is the fasting growing jobs sector in energy, accounting for half of the entire energy industry's job growth (133,000) in 2017

According to the Energy Efficiency Jobs in America, these 2.25 million energy efficiency jobs represented more than twice as many workers in the US as all fossil fuel sectors combined and far exceeded renewable energy industry jobs in solar (350,000 jobs) and wind (107,000 jobs). Please note that these energy efficiency jobs do not compete with the jobs in these other energy production sectors – they complement them. In addition, energy efficiency jobs in U.S. residential buildings – contractors and installers -- cannot be outsourced or exported to foreign countries.

The September 2018 Energy Efficiency Jobs in America, adds to a growing body of research that puts energy efficiency at the top of the list of job creators in the clean energy business sector. For example, on January 13, 2017, the U.S. Department of Energy (DOE) released its 2nd Annual United States Energy and Employment Report (USEER) providing a comprehensive analysis of 2016 data on energy related U.S. jobs. The 2017 USEER Jobs report indicated that ***2.2 million Americans*** were employed, in whole or in part, in the design, installation, and manufacture of energy efficiency products and services in 2016; that more than 133,000 new energy efficiency jobs were created in the U.S. in 2016; and that U.S. energy efficiency employers projected the highest job growth rate (9%) in 2017-2018 in all energy sectors surveyed. A third and similar U.S. Energy and Employment Report in May 2018 provided updated and comprehensive job numbers for energy efficiency employment throughout the United States.

All three jobs Reports highlight one critical theme that state agencies should consider in developing energy efficiency policy - *Properly designed and implemented energy efficiency and demand response programs have been demonstrated in numerous state and national studies to be the lowest cost, most predictable and most immediate method to reduce energy demand, create local jobs, provide opportunities for small business energy efficiency entrepreneurs while also providing health and comfort benefits to consumers and lower utility rates in the long term.*

According to the Energy Efficiency Jobs in America report some 33,815 New Jersey residents were employed in energy efficiency in 2017 – a significant number of jobs in a state with approximately 9 million residents. However, Energy Efficiency Jobs in America also indicates that 84,556 Massachusetts residents were employed in energy efficiency industries in 2017 –

more than twice the number represented in New Jersey, in a state with a significantly smaller population - less than 7 million residents. Massachusetts has adopted pro-job growth energy efficiency programs and policies. State policy can help develop more robust investment levels, entrepreneurial risk taking and small business development in the energy efficiency business sector in an individual state.

As NJBPU reviews its 2019 Energy Master Plan – these two observations should remain top of mind concerns: 1) the market sector with the most energy jobs in the states is energy efficiency; and 2) the policies developed and implemented by states such as New Jersey on energy efficiency can have a profound impact on job growth. Many New Jersey based home performance contractors and small businesses are eager to invest in and expand the state's energy efficiency industry.

In closing, HPC believes that energy efficiency is vital to a reliable, resilient energy grid. Energy efficiency improvements pay for themselves many times over, support a growing New Jersey economy that helps residents save money while creating more comfortable and safe homes and buildings. Thank you for providing this opportunity to submit comments. We welcome the opportunity to answer any questions you may have.

Contact Information

Kara Saul Rinaldi
Vice President of Government Affairs and Policy
Home Performance Coalition
Phone: (202) 276.1773, Fax: (202) 747-7725
kara@anndyl.com