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August 2015

# Recommendations for Integrating Home Energy Management Technologies into New Jersey's Energy Master Plan

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## *Introduction*

It is widely recognized that internet-based companies have disrupted many established industries. Traditional media companies must now compete with streaming content providers like Spotify or Netflix. They also have to contend with content that can be purchased online from iTunes or Amazon. Even brick and mortar stores are facing stiff competition from scores of online retailers. These changes, important as they are in their own right, point to a larger trend toward delivery of services through our computers and mobile devices.

During hearings held on August 11<sup>th</sup> and August 13<sup>th</sup>, while there were many excellent comments on other energy topics, there was little mention of how this trend is impacting home energy management. I hope that these comments will serve as a basis for discussion of these emerging technologies as the Board of Public Utilities (BPU) and stakeholders update New Jersey's Energy Master Plan (EMP).

Broadly speaking, the technologies discussed in these comments fall into two categories. The first category is connected devices, which is typified by smart thermostats, but is rapidly expanding to other devices. The second category is home energy reports (HERs), which provide easy to understand information to consumers about their own energy use. The two solutions, while different in important ways, have one common overarching objective. They both provide customers, who typically spend only a few minutes per year thinking about their energy usage, with user-friendly methods to reduce their energy bills.

Researchers have studied and documented the savings achieved by connected devices and HERs. I will provide the results of a small number of their studies. To the extent possible, my comments will avoid discussing individual companies or their products. However, some of the studies I cite pertain to specific smart thermostats and HER providers. Since competing products may achieve different results, it would be incorrect to state that savings are applicable to all smart thermostats or HERs. In other cases, I have used company names for the sake of readability. I do not endorse any particular company, nor do I have reason to believe that any of the products mentioned are superior when compared with competitors.

My intention is to give BPU and stakeholders a general sense of what is possible for different classes of products and, an admittedly incomplete, sketch of industry trends.

### *Connected Devices*

There are a growing number of products that allow consumers to control devices in their home from their smart phone, tablet, or laptop. Among the most popular are automated security devices, which can control locks and send security camera video to the homeowner anywhere they have wireless reception. There are also connected smoke alarm systems with similar capabilities, smart slow cookers that let you start cooking dinner when you leave the office, and even smart garage door openers.

Security systems, slow cookers, and garage door openers may appear to have little to do with energy. But as these technologies gain traction, consumers are becoming increasingly accustomed to the convenience of controlling devices in their homes from their office, favorite restaurant, or even while on vacation. In this way, connected energy, security, and other connected devices reinforce each other's sales. The Board should consider that connected home solutions are growing in New Jersey as a matter of consumer preference, independent of supporting regulations. However, the right regulations will enable consumers to unlock the full potential of these products.

### *Smart Thermostats*

According to market research firm Parks and Associates, smart thermostats are projected to make up about half of all thermostats purchased in 2015.<sup>1</sup> Many of these thermostats will be purchased along with an HVAC system, but a growing number will be purchased independently at retail stores. Many smart thermostats are also entering the home as part of utility demand side management plans.<sup>2</sup> As with all connected home devices, they can be controlled from anywhere with Wi-Fi service. This gives people the convenience and comfort of adjusting their thermostat from across the room or of turning the heat up before leaving work so that the home is at a comfortable temperature when the occupant returns home.

Many smart thermostats can learn the user's behavior. They also often feature intuitive displays, for example a green leaf that is displayed when energy use is optimized for efficiency. These innovations allow device owners simple tools for optimizing their energy use, especially adjusting temperatures at night or when occupants are away. Smart thermostats are easier to use than programmable thermostats and therefore are more likely to save energy.

Nest Labs, a leading smart thermostat producer, published a white paper summarizing three studies on the effectiveness of their product. One of these studies was commissioned by Nest, and two were independent. According to the whitepaper, the

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<sup>1</sup> Greentech Media, "Smart Thermostats Begin to Dominate the Market in 2015," July 22, 2015. Available at <https://www.greentechmedia.com/articles/read/smart-thermostats-start-to-dominate-the-market-in-2015>

<sup>2</sup> Ibid.

three studies found that Nest thermostats have the potential to save 10-12% on heating usage and 15% on cooling usage in homes with central air conditioning.<sup>3</sup> Their research takes into account that some people already have programmable thermostats or actively manage their HVAC system for efficiency.<sup>4</sup> Other companies may not have identical results for their smart thermostats. However, the Nest results are a rough guide for how effective these technologies can be.

Many smart thermostats do not enter the home through utility demand side management plans. For this reason there are companies that offer, “bring your own thermostat” (BYOT) programs. BYOT programs provide platforms for utilities, cable providers, home security system providers, and others to integrate smart thermostats into utility efficiency programs. For example, customers who purchase a smart thermostat at a store, or who receive one when upgrading their HVAC systems, can still participate in utility demand response programs through BYOT. BYOT programs support many brands of smart thermostats.

### *Connected Home*

Several large manufacturers of home appliances are developing or already selling smart appliances. Some of them, such as smart hot water heaters or room air conditioners have obvious energy management applications. The dividing line between individual smart appliances and the connected home is eroding as a growing number of appliances can be controlled through a single platform. For example, Apple has a platform that allows users to turn lights off and on by talking to their iPhone. Soon users will be able to adjust blinds, and other energy using devices in the same way. Platforms like the one from Apple will allow third party development of products and aps, increasing the potential for innovations in connected home energy management.

Some smart appliances, such as clothes washers and driers, can already participate in demand response programs through smart thermostats or other platforms. It is expected that more appliances will be controllable through smart thermostats in the near future.

### *Home Energy Reports*

Home energy reports (HERs), sometimes called behavior-based energy efficiency programs, provide a user-friendly analysis of a residential or small commercial customer’s energy use. Frequently they include a comparison with nearby residences’ energy use. For example, the report might feature a bar chart that shows what a typical home of the same size uses compared with what the customer’s home uses. Customers typically also receive energy efficiency tips, which are written so that they are easy to understand and are timed for the appropriate season. For example, they would receive a text message or email about adjusting air conditioning settings in summer. HERs

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<sup>3</sup> Nest, “Energy Savings from the Nest Learning Thermostat: Energy Bill Analysis Results,” February 2015. Available at <https://nest.com/downloads/press/documents/energy-savings-white-paper.pdf>

<sup>4</sup> Ibid.

frequently also include information on energy efficiency contractors and utility energy efficiency incentives.

HERs are typically offered through a partnership between an electric or gas utility and the HER provider. The reports are usually formatted with the utility logo so that they appear to originate from the utility itself. Utilities use HERs as a means of meeting their DSM targets, and also as a means of customer engagement.

According to a case study of a pilot project between Kentucky's Owen Electric Cooperative and HER provider Tendril, customers realized on average 4.1% in energy efficiency savings.<sup>5</sup> Another study, this time by an independent researcher, found that Massachusetts' behavior based programs were able to achieve 23% of the state's annual electricity savings goals for 2012 and 31% of the state's gas saving goals.<sup>6</sup>

Most HER providers also have demand response (DR) offerings. There are several models for achieving DR targets. Some HER providers simply ask customers to reduce their on-peak-energy usage through mailings, text messages, and emails. Results from an Opower pilot project in multiple states suggest that up to 5% of peak demand can be met through asking customers to consume less.<sup>7</sup> Other HER providers can perform DR through smart thermostats.

Some HER providers also have management tools for DSM program managers. Through these tools, the manager can compare the real time energy savings realized by different trade allies, different locations, or by energy efficiency measure undertaken. If, for example, a particular energy efficiency measure is underperforming, the manager can identify the problem and intervene to achieve better results. PSEG Long Island currently uses a service with these capabilities, and is also using it to identify pockets of transmission constraint where distributed energy resources can provide maximum grid benefits.

### *Policy Recommendations*

#### *General*

As mentioned earlier, connected home devices are a growing class of consumer good and that is likely to remain the case with or without regulatory changes. HERs, which are typically delivered through a utility, usually require regulatory action such as

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<sup>5</sup> Tendril, "Owen Electric Cooperative Increases Customer Engagement with Tendril." Available at: <http://www.tendrilinc.com/wp-content/uploads/2014/08/OEC-Case-Study-1.pdf>

<sup>6</sup> Navigant Consulting, "Massachusetts Cross-cutting Behavioral Program Evaluation Integrated Report June 2013," June 2013. Available at <http://opower.com/company/library/verification-reports?year=2013>

<sup>7</sup> Utility Dive, "Could reducing peak demand 5% be as simple as ... asking? Inside Opower's behavioral demand response pilot," November 4, 2014. Available at <http://www.utilitydive.com/news/could-reducing-peak-demand-5-be-as-simple-as-asking/329102/>

approving inclusion in utility DSM plans and oversight by state regulators. Many smart thermostat DR programs are also included in utility DSM plans and therefore are subject to Board approval. Both technologies have some capabilities that can only be fully realized in a favorable regulatory environment.

The policies outlined below are technology neutral. In other words, they do not provide a benefit to a particular HER provider or connected device manufacturer. They should also enable new business models and technologies beyond connected devices and HERs to develop and deploy over time.

#### *Determine Who Could Manage HER Programs*

New Jersey's residential energy efficiency programs are administered by a market manager that is independent from the utilities. It may be necessary to determine if the utilities are the right entity to contract with an HER provider. Some parallels might be drawn between Efficiency Vermont, which also runs HER programs independent of the state's utilities.

#### *Smart Meters*

Both connected devices and HERs can be deployed without advanced meter infrastructure (AMI). However, the performance of both is enhanced with AMI. For example, smart thermostats can provide real time displays of energy usage, time of use pricing, and other information when connected with a smart meter's Home Area Network (HAN).<sup>8</sup>

For HERs, smart meters provide a richer source of data, that can result in more personalized recommendations for saving energy. For example, smart meter data can be used by HER providers to break down customers energy use into categories like HVAC, lighting, or washing and drying clothes. This is better achieved through the data sharing policies discussed below.

#### *Data Sharing*

Smart meters generate useful information, but do not present it in a way that is easily useable to consumers. Connected devices and HERs convert this data into a format that customers with limited knowledge of energy can understand and take action on.

For data sharing to achieve meaningful results, it must be convenient. For it to be safe, appropriate data security measures must be put into place. Green Button Connect My Data is a national standard that fulfills both of these requirements. It is currently being used by Southern California Edison, San Diego Gas and Electric, and Pacific Gas and

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<sup>8</sup> EcoBee, "ecobee Smart SI Thermostat ZigBee/Smart Energy Manual," 2013. Available at: <https://ecobee.zendesk.com/entries/22840665-ZigBee-Smart-Energy-Manual-for-Smart-Si>

Electric across their entire service territories, and many other utilities have either partially deployed it or have committed to deploying it by the end of 2015.<sup>9</sup>

Green Button Connect, allows a customer to authorize third party vendors to access their data. The vendors must be registered with the “data custodian,” which is typically the utility. Consumers can authorize the registered vendors to access their data. The customer does not need to reauthorize access at regular intervals as some data sharing systems require, but can rescind permission at any time.

#### *Time Variant Pricing*

Time variant pricing can help residential consumers to make full use of connected devices and HERs. Many smart thermostat and HER companies offer “off the shelf” DR services that they can manage on behalf of utilities. Typically they can handle many aspects of utility DR programs, starting with recruitment of customers, managing DR events, crediting DR participants, and analyzing results. Time variant pricing, when combined with smart thermostats and HERs, can help customers to easily participate in DR programs and save on their energy bills.

#### *Conclusion*

I appreciate the opportunity to comment on New Jersey’s update to the EMP. I hope that my comments have proven useful and provide a basis for further discussions. If you have any questions please do not hesitate to contact me.

Brian Thomson

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<sup>9</sup> Mission:Data, Comments Submitted to the Pennsylvania Public Service Commission for Docket No. M-2009-2092655, “Submission of the Electronic Data Exchange Working Group’s Web Portal Working Group’s Solution Framework for Historical Interval Usage and Billing Quality Interval Use,” May 26, 2015. Available at: <http://www.puc.pa.gov//pcdocs/1362187.pdf>



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August 24, 2015

**VIA ELECTRONIC MAIL**

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Secretary of the Board  
New Jersey Board of Public Utilities  
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EMPUpdate@bpu.state.nj.us

Re: Comments on Energy Master Plan

On behalf of The New Jersey Society for Environmental, Economic Development (NJ SEED) I would like to offer the comments below on the 2015 Update to the NJ 2011 Energy Master Plan (EMP). NJ SEED is a unique coalition of New Jersey's most prominent labor and business leaders. Our diverse membership includes labor advocates, construction trade groups and electrical workers unions; energy providers; environmental consultants; telecommunications firms; banks; residential and commercial development interests; insurance firms; educators; law enforcement and firefighters; food manufacturers and retailers; water utilities; chemical industries; pharmaceutical companies and healthcare interests. What we all have in common is our belief that economic growth and environmental protection are not mutually exclusive. For more than thirty years, NJ SEED has supported balanced public policies that create private sector jobs, bolster our economy and enhance our environment.

Since the last State Energy Master Plan (EMP) was released, the State has been battered by a number of extreme storms, forcing policy makers to rethink what is needed to maintain our energy infrastructure and economy. Though Superstorm Sandy, Hurricane Irene, and other storms have created immeasurable damage to the state, these extreme weather events have ultimately allowed New Jersey the unique opportunity to upgrade its aging infrastructure. The process will continue to create countless jobs and will eventually result in a more robust infrastructure that can stand up to future extreme events and rebound faster to limit the impacts to New Jersey's economy.

NJ SEED believes updating the Energy Master Plan to establish its desired policies in responding to the challenge of hardening the State's energy infrastructure to withstand extreme weather events and of making the infrastructure more resilient would but the state more capable of rebounding from those events.

Upgrading the state's distribution and transmission infrastructure should be considered a critical component of New Jersey's next EMP. PJM, the regional transmission organization responsible for ensuring the reliability of the high voltage electric power system in our area, has identified several upgrades to the grid within New Jersey that will maintain the reliability of the grid in New Jersey for the future.



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The U.S. Pipeline and Hazardous Materials Safety Administration has supported programs of infrastructure investment and upgrades where implemented for natural gas pipeline replacement. Similar programs have been utilized to accelerate repair and replacement of natural gas infrastructure in many other states. Investment in the natural gas delivery system would enable improvements in natural gas efficiency, one of the 2011 EMP goals. The BPU has a history of support for these projects but there is considerable work to be done.

NJ SEED supports efforts to reduce emissions from large stationary sources, including power plants and manufacturing facilities. NJSEED supports requirements of stationary sources to run control systems to help reduce emissions that impact our air quality. Natural Gas pipelines, proposed throughout the state will allow replacement plants to run on the cleaner and less polluting natural gas.

Additionally, the influx of natural gas will benefit consumer and businesses alike as the prices drop due to lower demand while reliability increases. A March 2011 report by Rutgers CEEEP, Analysis for the 2011 Draft New Jersey Energy Master Plan Update, found that Commercial and Industrial (C&I) customers are charged 27 percent of their electric bill for government imposed policy. This has nothing to do with the delivery or price of the commodity. If the state is going to be competitive in our region, this is an area policy makers must attack and reexamine.

In conclusion, NJ SEED appreciates the opportunity to work with the BPU in improving the goals of the 2011 EMP consistent with industry and technological developments as well as the changing economic landscape since the last EMP was adopted. NJ SEED applauds the Administration, particularly the New Jersey Board of Public Utilities, for providing an Energy Master plan which is sensible in its approach to energy policy and for considering New Jersey's manufacturing and environmental sectors, as well as its citizens who rely on a dependable energy systems. Thank you for your consideration.

Respectfully,

Michael K. Drulis  
Executive Director



August 24, 2015

Energy Master Plan Committee  
 c/o: Irene Kim Asbury, Secretary of the Board  
 New Jersey Board of Public Utilities  
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RE: Update of 2011 Energy Master Plan

Dear Energy Master Plan Committee Members,

The US Green Building Council - NJ Chapter (USGBC-NJ) is grateful for this opportunity to share its recommendations regarding the energy priorities that should serve as the platform for the updated State Energy Master Plan (EMP) pursuant to the August 24, 2015 public comment deadline. In addition to a complete reorganization of the EMP document such that its goals, objectives and implementation strategies are clearly stated, the USGBC-NJ recommends the updated EMP be built upon the following set of prioritized goals and objectives:

- the cheapest kilowatt-hour of electricity is the one you never use.
- Cost-effective energy efficiency measures lower energy costs over the long-term and produce significant benefits to customers, including:
  - Lowering energy costs overall by reducing peak energy usage and providing a cheaper alternative to building and operating additional, marginal, and often the most expensive generating facilities.
  - Lowering energy costs for customers that install Energy Conservation Measures (ECMs) systems by lowering energy usage.
  - Making New Jersey businesses more competitive by lowering their energy costs.
- Utilizing the resultant energy efficiencies and cost savings to fund implementation of the ECM improvements.

In order to accomplish these goals and objectives we have the following recommendations for the State of New Jersey.

### 1. Support Public and Private Sector Investment in Energy Efficiency and Conservation

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A. Use Societal Benefits Fee (SBF) revenues to establish and implement programs that encourage and enable local government entities, businesses and residents to identify and install ECMs.

I. Initiate a more aggressive use of SBF dollars designed to expend collected dollars each year on proven ECM technologies.

II. Work to eliminate the diversion of SBF monies from their intended purpose for short - term budgetary use. New Jersey has ceded its leadership in the energy conservation field. It was twice ranked in the top ten among states for energy efficiency programs between 2006 and 2007. New Jersey now underperforms when compared against other states in the area of energy conservation. This is a missed opportunity in both energy and economic terms.

B. Establish Energy Efficiency Portfolio Standards for the State of New Jersey - similar to the other 26 states that have energy standards and are cutting monthly bills, reducing pollution, creating jobs and becoming more economically competitive. These standards would apply to utilities which in turn, would offer energy saving services and products to their customers.

C. Create a new, restructured economically sustainable energy utility business model and transition plan that incentivizes energy conservation and efficiency across public and private sectors.

D Enhance marketing of new ECM implementation programs and incentives, showcase success stories and increase public outreach efforts through partnerships with state, county and local government entities, the USGBC-NJ and other partner organizations such as Sustainable Jersey.

2. Secure the Resiliency and Reliability of the State's Energy Systems

A. Establish policies and funding programs that support micro-grids powered by distributed energy generation systems (solar + storage, CHP, bio-fuel recovery and other clean/renewable systems) to ensure power supplies to water and wastewater treatment facilities, police and fire stations, hospitals and other critical facilities throughout the entire State, and reduce dependence on mobile fuel supply systems during energy emergencies.

B. Provide funding to assist municipal/county governments and partnering critical facility operators for adding storage and micro-grid improvements to critical facilities where solar and other forms of clean energy generation were previously installed. (Prioritize ECM implementation at these facilities).

C. Implement measures for protecting the cyber-security of the electric generation and distribution system.

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D. Incorporate smart grid technology to improve grid resiliency, target damage locations and shorten response times during emergencies.

E. Use energy storage technology to improve grid resiliency, provide back-up power and to create and improve efficiencies.

F. Require that enhanced energy emergency protective measures be established as part of the new energy business model and include more effective demand response system solutions.

### 3. Increase Reliance on Clean Energy

A. Recognize that natural gas power generation is a short-term solution. Provide routinely updated cost/benefit analyses for new in-state gas power generation and pipeline expansions that are based on full cost, life cycle accounting that takes into consideration environmental & natural resource damages, health impacts and the duration of supply availability, in addition to economic considerations including job creation.

B. Adopt policies and provide incentives to expand in-state clean & renewable energy generation, and expand access to renewable energy opportunities to all sectors.

I. Prioritize policies and incentives that make the best use of these dollars by focusing on large consumers of energy such as schools, colleges and universities, large commercial and industrial buildings and public buildings.

C. Increase the renewable energy portfolio standard goal, since the 2020 goal for New Jersey has already been achieved.

D. Facilitate university/energy industry partnerships and invest in the development of diverse renewable technologies - including new forms of solar, wind, geothermal, biofuels, battery storage, etc..., in order to achieve a diverse in-state renewable energy portfolio; and strengthen the energy industry sector so that it has the flexibility to respond to new technologies and growth opportunities.

### 4. Achieve Energy Sustainability

A. Restore New Jersey as a national leader with regard to advancing energy sustainably goals and its economic competitiveness by reforming the energy system so that is clean, secure, reliable and affordable.

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B. Establish programs and guidelines for the re-use and recycling of energy generation and transmission system components including but not limited to spent batteries, Solar PV and circuitry.

C. Expand eco-industry opportunities (i.e. one's "waste" heat is another's source of energy) and energy industry incubators.

D. Increase government and energy utility transparency to promote public/private partnerships and a greater level of collaboration and cooperation in order to identify and implement creative, cost-effective solutions that achieve state, county and municipal sustainability, smart growth and resiliency goals.

E. Incorporate a value-based pricing system that accounts for environmental externalities and uses full life-cycle cost accounting into the new energy business model.

F. Support implementation of green building system technologies such as LEED and Living Building design requirements as they relate to energy conservation and renewable energy standards; integrate smart appliances and management strategies.

G. Support and work to implement the IGCC building standards in all residential building codes.

H. Promote energy-efficient/clean energy mass transit and electric vehicle systems that can be optimized using renewable energy coupled with energy storage.

The USGBC-NJ would welcome the opportunity to discuss the above recommendations in detail with the EMP Committee. Please contact us at [Charles@amg101.com](mailto:Charles@amg101.com) or (609) 392-7553 to schedule a meeting. Thank you.

Sincerely,



William Amann, P.E., DCEP, LEED AP  
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## **New Jersey Environmental Justice Alliance Comments on the 2011 Draft New Jersey Energy Master Plan**

The New Jersey Environmental Justice Alliance (NJEJA) is the only statewide environmental organization in New Jersey that focuses solely on environmental justice issues. It is also the only statewide New Jersey environmental organization in which a majority of both its membership and leadership are people Of Color. NJEJA attempts to improve the health and quality of life in communities Of Color and low-income neighborhoods by reducing pollution in these areas and ensuring their residents are involved in decisions that affect their communities. We also believe that protecting the most vulnerable from environmental harm is the most effective way of protecting everyone.

NJEJA is submitting these comments on New Jersey's draft energy master plan (EMP) because it has concerns with both what *is* and *is not* included in the plan. NJEJA does not agree that natural gas and nuclear energy should be considered clean energy sources. We also oppose the suggestions that the use of natural gas to generate electricity for New Jersey, and the use of waste incineration techniques, should both be expanded. But perhaps more importantly NJEJA decries the fact that the EMP presents no vision for a coherent energy policy that could help revitalize the urban areas of our state. These concerns are discussed in more detail in these comments.

### **Natural Gas and Nuclear Energy Should Not Be Considered Clean Energy Sources**

NJEJA supports the goal of supplying 70% of New Jersey's electricity through the use of clean energy by 2050 and opposes including natural gas and nuclear energy as

clean energy, which is advocated by the EMP.<sup>1</sup> The primary reason for our opposition to defining natural gas and nuclear energy as clean energy is very simple: both produce pollution when utilized to generate electricity. The toxic radioactive waste produced by nuclear energy and our inability to safely dispose of this waste is well documented.<sup>2</sup> The recent nuclear accident in Japan is also a vivid reminder of the dangers that nuclear energy presents beyond the unresolved waste disposal issues. Although a natural gas power plant would be significantly less polluting than a traditional coal fired power plant it would still produce pollution such as nitrogen oxides and small amounts of sulfur dioxide<sup>3</sup> that could be harmful to the health of residents living in communities near and downwind of the plant, especially if these communities already suffer from significant levels of air pollution. A natural gas plant would also produce a significant amount of carbon dioxide.<sup>4</sup>

Since nuclear energy and natural gas are not, in reality, “clean”, defining them as such would defeat the purpose of setting the 70% goal. The goal was meant to provide an incentive for the development and use of truly clean energy sources such as solar and wind, and by doing so move us away from energy sources that produce toxic by-products. Allowing nuclear energy and natural gas to be defined as clean energy sources would be a significant step towards the elimination of the 70% goal.

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<sup>1</sup> See draft EMP pp. 3 and 74.

<sup>2</sup> See Ewing, R.C. and F.N. von Hippel. 2009. Nuclear Waste Management in the United States – Starting Over. *Science* 325:151-152.

<sup>3</sup> See U.S. Environmental Protection webpage at <http://goo.gl/At6xw>.

<sup>4</sup> See U.S. Environmental Protection webpage at <http://goo.gl/At6xw>.

## **NJEJA Opposes the Expanded Use of Natural Gas to Produce Electricity for New Jersey**

The draft EMP advocates for the expanded use of natural gas to produce electricity for New Jersey citizens.<sup>5</sup> NJEJA opposes this expansion of natural gas utilization at this time due to the potential it has to harm communities where it is extracted and where it is used to generate electricity. It seems that a significant amount of the natural gas that would be used to fuel its expansion as a New Jersey energy source would come from Marcellus shale.<sup>6</sup> This would involve our state in the very controversial issue of hydraulic fracturing,<sup>7</sup> a process used to extract the natural gas. The potential of hydraulic fracturing to harm communities where natural gas is extracted using this procedure is hotly contested and unresolved.<sup>8</sup> The draft EMP makes no effort to account for the potential harm caused by hydraulic fracturing in its calculation as to whether the expanded use of natural gas to produce electricity in New Jersey is a reasonable and beneficial proposition. NJEJA cannot support the expanded use of natural gas in our state due to the possibility it will cause significant environmental injustices in the communities where it is extracted, even though those communities are not in New Jersey.

But we know that the expanded use of natural gas in our state will also cause environmental injustice in New Jersey due to the proposed location of a new natural gas power plant. The draft EMP mentions the intent to site a plant in Newark<sup>9</sup> and we have information that indicates the exact location of the plant will be the Ironbound section of

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<sup>5</sup> See draft EMP pp. 67, 75 and 78-79.

<sup>6</sup> See draft EMP pg. 58.

<sup>7</sup> See draft EMP pg. 73.

<sup>8</sup> See U.S. Environmental Protection webpage at <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturingindex.cfm>.

<sup>9</sup> See draft EMP pp. 67 and 79.

the city. The Ironbound community has numerous polluting facilities already located within its borders.<sup>10</sup> The siting of another polluting facility in this neighborhood could harm the health of residents and would be a clear environmental injustice. New Jersey Department of Environmental Protection data show that the amount of pollution in the state's communities is positively correlated with race and negatively correlated with income.<sup>11</sup> In other words, the more people Of Color who live in a community, and/or the more people of low-income who live in a community, the more pollution it is likely to have. The EMP must make sure that the state's energy policy does not perpetuate this injustice. Siting a natural gas power plant in an Ironbound community that already has more than its fair share of polluting facilities would certainly perpetuate this injustice and the EMP should be changed so this can not occur.

### **NJEJA Opposes Additional Waste Incineration or Plasma Gasification**

The draft EMP seems to endorse an expansion of the use of waste incineration or initiating the use of plasma gasification. The plan notes that these technologies can be operated "with state-of-the-art pollution control systems in conformance with strict emission limits."<sup>12</sup> But even with strict emission limits incineration,<sup>13</sup> and possibly gasification,<sup>14</sup> will still place additional pollutants in the air. Once again we worry that much of this incineration or gasification will occur in communities already overburdened

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<sup>10</sup> See draft EMP comments submitted by the Ironbound Community Corporation.

<sup>11</sup> New Jersey Department of Environmental Protection. 2009. A Preliminary Screening Method to Estimate Cumulative Environmental Impacts, pg. 5. Available at [http://www.state.nj.us/dep/ej/does/ejc\\_screeningmethods20091222.pdf](http://www.state.nj.us/dep/ej/does/ejc_screeningmethods20091222.pdf).

<sup>12</sup> Draft EMP pg. 101.

<sup>13</sup> See Thompson, J. and H. Anthony. 2005. The Health Effects of Waste Incinerators, 4<sup>th</sup> Report of the British Society for Ecological Medicine.

<sup>14</sup> Mottola-Jaborska, D., M. Elliott, D., Pringle, J., Tittel and M. Pisauro, 2008. Letter to Members of the Assembly Telecommunications and Utilities Committee.



with pollution such as the Ironbound community in Newark and the Waterfront South community in Camden, both of which are homes to municipal waste incinerators. Communities like these need a reduction in air pollution, not additional air pollution, even if that pollution is legal.

### **The Draft EMP Should Include a Coherent Urban Energy Policy**

A glaring and critical omission from the draft EMP is a coherent energy policy for urban areas of New Jersey. Over the next several decades energy policy has the potential to significantly transform New Jersey and our state must ensure that its urban areas and the residents who live in them share the benefits of this transformation. In fact, NJEJA urges the state to make our urban areas the focus of New Jersey's energy policy. In this way the state's energy policy will improve the public health and economic health of urban communities where so many of New Jersey's most vulnerable citizens live. A coherent urban energy policy would contain at least three elements:

- Energy efficiency techniques and renewable energy sources should be used extensively in urban areas.
- A strategy should be developed and implemented that ensures a fair share of jobs produced by energy policy go to residents in urban areas of our state.
- New electricity producing facilities should not be sited in communities Of Color and/or low-income neighborhoods that are already overburdened with pollution.

Using renewable energy sources and energy efficiency extensively in urban areas would benefit our cities and state in at least three ways: 1) It would reduce emissions of fine particulate matter (PM) and its precursors, sulfur dioxide and nitrogen oxides; 2) It would reduce emissions of carbon dioxide; and 3) It would provide jobs and other economic opportunities to urban residents. Reducing emissions of fine PM could

significantly improve the health of residents in urban areas since this deadly pollutant is responsible for tens of thousands of premature deaths in the United States and is a health threat in New Jersey.<sup>15</sup> Reducing emissions of carbon dioxide would, of course, help to fight climate change.

The economic opportunities connected to the extensive use of renewable energy sources and energy efficiency should not be limited to jobs. It should also include entrepreneurial opportunities and the chance for urban areas to be centers for research and development. However, in recognition of the importance of a job to life in our society the state should develop a policy that ensures employment opportunities created by the use of renewable energy sources, energy efficiency, and other energy policies will be accessible to urban residents. The combination of jobs, entrepreneurial opportunities, and being a nexus for research and development could economically revitalize urban areas that are in desperate need of an economic boost.

One way to catalyze the use of renewable energy and energy efficiency in urban areas would be to create sustainable energy utilities for our inner city neighborhoods. These non-profit organizations would gather capital to make renewable energy sources and energy efficiency techniques economically accessible to urban residents, and they would also provide education for, and reach out to, urban residents regarding these two critical

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<sup>15</sup> For example the California Environmental Protection Agency estimated that fine PM caused 14,000 to 24,000 premature deaths per year in California alone and the New Jersey Department of Environmental Protection estimated that it caused at least 1,900 deaths per year in New Jersey. However, it should be noted that fine PM concentrations in New Jersey have probably decreased since this document was issued. See California Environmental Protection Agency, Air Resources Board. 2008. Methodology for Estimating Premature Deaths Associated with Long-term Exposures to Fine Airborne Particulate Matter in California, Draft Staff Report, May 22, 2008, 49 pp., at pg. 34 and New Jersey Department of Environmental Protection. 2008. State Implementation Plan (SIP) for the Attainment and Maintenance of the Fine Particulate Matter (PM<sub>2.5</sub>) National Ambient Air Quality Standard, PM<sub>2.5</sub> Attainment Demonstration Proposal, June, 16, 2008, at pg. 1-7.

topics.<sup>16</sup> The sustainable utilities and the other elements of an urban energy plan could be funded through use of the societal benefit charge.

As explained above, New Jersey has a significant environmental justice problem because the amount of pollution in neighborhoods is correlated with the race and income of residents. Communities Of Color and low income neighborhoods in New Jersey and the rest of our country are too often over-burdened with pollutants due to multiple sources of pollution that are disproportionately sited in these areas. The cumulative impacts of these pollution sources can be detrimental to the health of residents living in these communities. New Jersey must establish a siting policy for power producing facilities that does not perpetuate or exacerbate this injustice. If this type of siting policy was implemented and it was coupled with the extensive use of renewable energy sources and energy efficiency in urban areas that would produce little or no pollution, then energy policy might help reverse the troubling relationship that now exists in New Jersey between pollution, race and income.

If the Board of Public Utilities (BPU) created and implemented a coherent urban energy plan it would also help the state to attain its goal of producing 70% of New Jersey's electricity from renewable energy sources by 2050 since our cities would be using their energy more efficiently and increasing their use of renewables.

## **Conclusion**

NJEJA stands ready to help the Board of Public Utilities (BPU) develop and implement the ideas contained in these comments. The BPU should actively seek input from community residents in urban areas, community-based organizations, and social

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<sup>16</sup> A program similar to the one being advocated here was created in Delaware. Information is available at <http://www.seu-de.org>.

justice organizations and then revise the draft EMP so that it will help transform urban areas in our state.

Submitted on behalf of the New Jersey Environmental Justice Alliance by:

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8/24/11

**VIA ELECTRONIC MAIL**

The Honorable Irene Kim Asbury  
Secretary, New Jersey Board of Public Utilities  
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August 24, 2015

Re: *Comments on an update of the 2011 Energy Master Plan*

Dear Secretary Asbury:

On behalf of the Fuel Cell and Hydrogen Energy Association (FCHEA), please accept the following comments regarding the update of the NJ Energy Master Plan (EMP).

**Background**

FCHEA is the national trade association dedicated to the commercialization of fuel cells and hydrogen energy technologies. Fuel cells are a unique set of clean, efficient, and resilient energy technologies being placed in service for stationary power generation, backup power, material handling equipment, and fuel cell electric vehicles (FCEVs).

The Department of Energy's yearly report titled *State of the States: Fuel Cells in America*, has consistently ranked New Jersey among the top fuel cell states, thanks in part to the laudable goals set forth in the EMP. Outlined in the following comments are small but meaningful changes that will allow fuel cell technology to help the State lower energy costs, improve efficiency and reliability, and build a more resilient energy infrastructure.

As you know, fuel cells are a unique set of clean, efficient, and resilient energy technologies being placed in service for stationary power generation, backup power, material handling equipment, and on-road vehicles. Stationary fuel cells are a valuable contributor to a comprehensive clean energy strategy, providing continuous, efficient, and resilient power.

**Comments**

We continue to support the Master Plan and its objectives. In particular, fuel cells are vital to promote a *"diverse portfolio of new, clean, in-state generation,"* as well as capitalizing on *"emerging technologies for transportation and power production."*

We also strongly support the goal of siting 1,500 MW of distributed generation (DG) and combined heat and power, as we are certain that fuel cells can be a major contributor to this effort. However, the State needs to work with industry to reduce barriers that our technology currently faces. This includes, but is not limited to, *funding opportunities through the clean energy fund (CEF)* and *equitable treatment under net-metering standards.*

Use of fuel cell technology has been more widespread in states like Connecticut, New York and California thanks in part to focused, sustained and robust programs that are results oriented.

This use has not only helped lower emissions attributed to by power generation, it has provided an additional layer of resiliency for uses in the case of catastrophic incidents like Super Storm Sandy.

A cursory review of the performance of fuel cell performance following extreme weather events, demonstrates that the technologies delivered on their promise to continue operating under the most severe circumstances in primary and backup power mode.

Various businesses, telecommunication firms, emergency shelters, and other critical infrastructure in the northeast utilizing fuel cells were able to continue operating while others either went without power, or relied on diesel generators that had limited capacity to operate<sup>1</sup>.

Earlier this year, we commented on the proposed reduction in the FY 2016 CEF budget. The proposal sought to limit funding for fuel cell technologies. We continue to stress that any reduction would effectively eviscerate the role that fuel cells can contribute to clean, resilient, energy projects in the State at a time when a mandate is still in place to increase the number of high-resiliency energy projects in New Jersey.


Finally, the State's EMP does make recommendations on sustainable transportation, which we applaud. However, we remain perplexed that the recommendations focus exclusively on battery electric vehicles, at the expense of fuel cell electric vehicles (FCEVs).

Because at least three manufacturers will offer FCEVs for sale by the end of 2016, changes to the NJ EMP should explicitly mention include the role that FCEVs could play, as well as how the State will leverage existing infrastructure to build out hydrogen refueling stations that will be necessary to support these coming fleets.

### **Closing**

The Fuel Cell and Hydrogen Energy Association appreciates the opportunity to comment on the EMP. We also applaud the State for revisiting the plan to ensure that energy consumers can enjoy a world-class energy infrastructure that is reliable, clean and available when needed.

Respectfully submitted,

  
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<sup>1</sup> Enhancing the Role of Fuel Cells for Northeast Grid Resiliency [www.fchea.org/s/Northeast-Resiliency-White-Paper-February-2015.pdf](http://www.fchea.org/s/Northeast-Resiliency-White-Paper-February-2015.pdf)



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August 24, 2015

**Comments Submitted to the New Jersey Department of Public Utilities**

**Relating to**

**Update of the Energy Master Plan**

**The National Biodiesel Board**

The National Biodiesel Board (NBB) is the national trade association that represents the biodiesel and renewable hydrocarbon diesel industries as the coordinating body for research and development in the U.S. It was founded in 1992 and has developed into a comprehensive association that coordinates and interacts with industry, government and academia. NBB's membership is comprised of biodiesel producers, feedstock and feedstock-processor organizations, fuel marketers and distributors, and technology providers.

**Fuel Merchants Association of New Jersey**

The Fuel Merchants Association of New Jersey (FMANJ) is a trade association that represents over 600 petroleum industry and related companies in New Jersey. Association members distribute heating oil to residential, commercial and industrial customers and also gasoline and diesel fuel to service stations and commercial fleets, as well as to state and local governments. FMANJ is a long-standing advocate of energy efficiency and the use of renewable, clean burning biodiesel.

**Comments**

NBB and FMANJ commend New Jersey for initiating the update of its 2011 Energy Master Plan. We believe that the Energy Master Plan update process will be a valuable opportunity for charting a path forward to a sustainable energy future.

NBB and FMANJ are supportive of the Energy Master Plan update and wish to offer the following information and recommendations relating to biodiesel and Bioheat®:

*Biodiesel Compared to Natural Gas - A Real Opportunity for Greenhouse Gas Savings*

Biodiesel can achieve significant savings in greenhouse gas (GHG) emissions compared to natural gas-fired energy systems. A recent study by ICF International has compared the GHG emissions of biodiesel with conventional fossil fuels at the point of combustion. The study shows that B100 biodiesel can achieve an approximately 70 percent reduction in onsite CO2 emissions compared to natural gas. The percentage of total GHG savings is even higher if the impacts of methane leakage from transmission and distribution pipelines are taken into account.

The expanded use of biodiesel would achieve considerably more GHG reductions than would be possible simply through conversion of oil-fired combustion systems to natural gas. Natural gas currently achieves short-term cost savings for customers. But our real need is for long-term energy solutions that enable us to achieve 80 percent GHG savings by the year 2050. Biodiesel meets this challenge while also contributing to air quality and economic development.

#### *The Biodiesel Industry is Creating Green Jobs and Making a Positive Contribution to the Economy*

Biodiesel can be made from a wide variety of feedstock materials. The fuel is produced in accordance with the D6751 fuel specification set forth by the American Society for Testing of Materials (ASTM International). Yellow grease (used cooking oil) and brown (sewer) grease, as well as animal fats, are economical feedstock materials. Several different types of plants, including soybeans, canola, and pennycress, can also provide the base oil for biodiesel production. Biodiesel offers an especially effective outlet for fat-based waste streams that can cause substantial cost for disposal.

Biodiesel production offers the opportunity for significant job creation in the agricultural and food industry sectors throughout the US. The economics of biodiesel can be favorable for small through large-scale, thus providing flexibility for locally-based, feedstock and fuel production.

#### *Increasing Availability in the Marketplace*

Biodiesel is a renewable, low-carbon, diesel replacement fuel that is widely accepted in the marketplace. It is the only commercial-scale Advanced Biofuel under the U.S. EPA Renewable Fuels Standard (RFS2) program. Biodiesel is one of the best-tested alternative fuels in the country and the only alternative fuel to meet all of the testing requirements of the 1990 amendments to the Clean Air Act. There are currently more than 150 biodiesel plants in the U.S. with a combined production capacity of over 3 billion gallons.

Biodiesel is primarily marketed as a blending component with conventional diesel fuel and heating oil in concentrations between two (B2) and twenty percent (B20). It is distributed utilizing the existing fuel distribution infrastructure with blending occurring both at fuel terminals and “below the rack” by fuel marketers. Certain fuel distributors have also begun to market B100 biodiesel for thermal applications in the residential, commercial and industrial sectors.

#### *Biodiesel is Good for the Environment*

Biodiesel is environmentally safe and is the most viable renewable fuel for transportation, power generation and thermal applications, based on its low carbon footprint and favorable air quality characteristics. A full life-cycle analysis performed by U.S. EPA for RFS2 shows that biodiesel reduces greenhouse gas emissions by as much as 86 percent compared to traditional diesel fuel.

#### *Thermal Applications*

Biodiesel can be easily blended with ASTM D396 heating oil (including no. 2 through no. 6 heating oil) to displace imported petroleum and improve the operational performance of the fuel. Significant laboratory research and field testing have been performed over the past 10 years to show that biodiesel



blends are practical and environmentally-friendly fuels for power generation boilers as well as heating systems in residential, commercial and industrial buildings.

Brookhaven National Laboratory (BNL) has been the leading organization to study the properties and performance of biodiesel blends under wide ranges of operating conditions. BNL testing has shown that biodiesel blends of up to B20 can be used in oil-fired combustion systems without requiring modifications to tanks, burners or other components.

Recent testing has shown further that B100 biodiesel can be used in boiler systems of all sizes with only limited modifications to fuel storage systems and burners. The moderate solvency effect of biodiesel has also been shown to be effective in keeping large, oil-fired combustion systems (especially air swirl vanes on no. 6 oil burners) clean and free of carbon deposits, thus contributing to reduced, smoky exhaust emissions during operation.

Biodiesel is inherently an ultra-low sulfur fuel (sulfur content under 10 ppm) and contributes to the environmental goal of reducing PM 2.5 fine particulate emissions especially in densely populated regions. Biodiesel can thus serve as a renewable component in ultra-low sulfur (ULS) heating oil, which is required in New York, and soon throughout the northeastern United States, for oil-fired combustion systems.

Laboratory and field testing has shown that biodiesel can also help to reduce NOx emissions in power generation and thermal applications. The natural, 10-12 percent oxygen content of the biodiesel molecular structure can reduce fuel-rich pockets and peak temperatures, which are the primary culprits for NOx formation within the flame.

Data published by Brookhaven National Laboratory show a substantial downward trend of SO2 and NOx emissions from oil-fired combustion systems as the fuel source is switched from traditional heating oil to B100 (100 percent) biodiesel. The SO2 emissions are almost entirely eliminated. NOx emissions are reduced by approximately 20 percent compared to traditional heating oil.

#### *The Biodiesel Industry Stimulates Development of New Low Carbon Feedstocks*

The feedstock used to produce U.S. biodiesel has become increasingly diversified, with waste products such as animal fat and used restaurant cooking oil (yellow grease) making up a larger portion of feedstock used to produce fuel. The National Renewable Energy Laboratory (NREL) recently conducted an extensive report on the availability of yellow and brown grease. That report concludes that 9.4 pounds of yellow grease and 13 pounds of brown grease are available on an annual, per capita basis throughout the U.S. These figures should be used to more accurately forecast the amount of feedstock available in the Northeast and Mid-Atlantic states. NBB estimates that, nationally, these feedstocks can produce more than 900 million gallons of biodiesel. In addition, a report commissioned by the NBB addresses the use of animal fat, which has also become a major contributor of waste feedstock.

Biodiesel production is currently the most efficient way to convert sustainable biomass into low carbon diesel replacement fuel. As a result, industry demand for economical, low carbon, reliable sources of feedstock oils is stimulating promising public, private, and non-profit sector research on so-called "second generation" feedstocks such as algae. The NBB is participating in this effort by making substantial investments in algae research in collaboration with the Donald Danforth Plant Science

Center. It is estimated that for every 100 million gallons of biodiesel produced from algae, 16,455 jobs will be created and \$1.461 billion will be added to the national gross domestic product.

Algae's potential as a source of low carbon fuel has been well documented, and a stable, growing biodiesel end-use industry is necessary if the U.S. is to eventually benefit from the commercial scale production of algal-based biofuels. The NBB estimates that for every 100 million gallons of biodiesel produced from algae, 16,455 jobs will be created and \$1.461 billion will be added to the GDP.

While soybean oil is considered a co-product rather than a waste feedstock, further discussion of this raw material is merited since farmers in several Northeast and Mid-Atlantic states produce soybeans. In 2007, approximately 39 million bushels of soybeans were grown in the states of Delaware, Maryland, New Jersey, New York, and Pennsylvania. The oil derived from this crop should be considered a sustainable, regional feedstock.

It is important to understand that demand for protein meal used as livestock feed is the primary driver for the planting of soybeans since 80 percent of a soybean is comprised of protein meal. Only 20 percent of the bean is comprised of oil. Historically, the demand for protein meal has driven soy production, resulting in a supply of soybean oil that exceeds the demand for food uses (primarily deep frying foods and baking products). The biodiesel industry helps to make economical use of this excess oil. By creating a market for this excess oil, the price of the protein meal is reduced on a proportional basis.

#### *Biodiesel Increases Energy Security and Competition*

Biodiesel is produced in geographically diverse, local facilities that are often located in close proximity to end-use markets. Production facilities are not concentrated in any particular region and are thus less vulnerable than many other types of energy resources to widespread disruption during weather disasters.

#### *Co-products Have Important Sustainability Benefits*

The co-product relationship between soybean oil and soybean meal delivers environmental benefits because no crop land and no inputs, such as water, nutrients, and energy, are used solely for the production of renewable fuel. The co-product relationship optimizes the beneficial uses from crops that will be planted anyway to satisfy demand for livestock feed and other uses. Growth in biodiesel volumes will come from more efficient utilization of existing wastes and additional vegetable oil produced as a result of yield increases on existing acres, the growing demand for livestock feed, and decreasing demand for high-trans-fat vegetable oils.

The federal RFS2 program explicitly prohibits land conversion for the purpose of producing renewable fuel. U.S. EPA requirements notwithstanding, basic economics dictate that the production of oilseed crops must correlate to the demand for protein meal, and cannot expand solely in response to demand for vegetable oil. It is impossible for oil demand alone to drive the planting of oilseed crops in North America.

## Policy Recommendations

The National Biodiesel Board and Fuel Merchants Association of New Jersey wish to offer the following policy recommendations for consideration during the New Jersey Energy Master Plan update process:

### 1) Increased Use of Biodiesel in Heating Oil

We recommend that New Jersey implement programs that provide for increased use of biodiesel in heating oil for residential, commercial and industrial applications. New Jersey could build upon recent action in New York City and Rhode Island by adopting a B5 requirement for heating oil.

### 2) Development of Renewable Thermal RPS Program

We recommend that New Jersey add a renewable thermal component to its electric RPS program. The concept of a renewable thermal RPS program has been established in New Hampshire and is under implementation or consideration in several other states across the nation, including Massachusetts and Vermont.

A renewable thermal RPS program would provide a parallel avenue for compliance with electric RPS requirements by obligated parties in New Jersey. This could serve to reduce the overall cost to ratepayers for the RPS program while further accelerating the transition to renewable energy in both the electricity and thermal sectors.

### 3) Biodiesel-fired, Combined Heat and Power

Modern, clean diesel technology now achieves the same range of NO<sub>x</sub> and fine particulate emissions as natural gas-fired engines. We would therefore recommend that New Jersey programs for Combined Heat and Power (CHP) provide increased emphasis for the use of biodiesel as a means of improving the carbon footprint and resource diversification of CHP-based power generation.

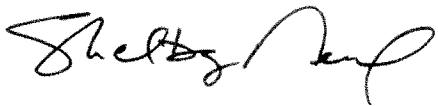
We would suggest that New Jersey give consideration to additional incentives for CHP similar to those enacted recently in Massachusetts, under which customers can earn energy credits for both the electric and thermal output of their systems.

The National Biodiesel Board and the Fuel Merchants Association of New Jersey would be pleased to work with State agency staff in New Jersey to further explore the issues that we have described above.

**Conclusion**

The National Biodiesel Board and the Fuel Merchants Association of New Jersey urge Energy Master Plan staff to recognize and implement a greater role for biodiesel. Biodiesel can enable New Jersey to more effectively achieve real, and long-term, environmental sustainability while realizing the economic benefits that come from new job creation and reduced dependence on foreign oil.

Sincerely,



Shelby Neal  
Director of State Governmental Affairs

and



Eric DeGesero  
Executive Vice President  
Fuel Merchants Association of New Jersey

## CORE METRICS

235 Van Winkle St., East Rutherford, NJ 07073

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August 24, 2015

New Jersey Energy Master Plan  
c/o Board of Public Utilities  
P.O. Box 350  
Trenton, NJ 08625 (delivered by e-mail)

RE: Forecasting's essential role in planning and meeting long-term goals

Dear Commissioners and Staff:

This letter is a supplement to my prepared statement of August 11, delivered at the EMP hearing in Newark. At the hearing, I spoke about how the 2011 Energy Master Plan misused PJM's net energy forecast in three ways – to make changes to the state's energy savings goal, to exaggerate the aggressiveness of the 2011 goal, and to exclude power supplied outside of PJM's grid from data on overall electric loads for the state. I have learned the problem of New Jersey's misinterpreting forecasts is more widespread than I realized. I will return this topic in relation to the Global Warming Response Act.

Load forecasts and energy sector forecasts<sup>1</sup> are fundamental to defining and meeting New Jersey's current and future energy needs. Forecasting is a complex process, and a model that produces forecasts cannot be treated like a black box. Understanding a forecasting model's purpose and limitations are important. It appears the BPU latched onto PJM's forecasts without adequately understanding the model's documentation and published studies on the limitations of PJM's forecasts<sup>2</sup>. PJM was explicit about the purpose of their forecast and the intended audience. When used appropriately, their forecast can still be a very useful tool for planners in New Jersey.

Load forecasting in the presence of energy efficiency (EE) programs is tricky, because the programs meet the demand for energy by subtracting from loads rather than adding to new generation. Planning issues related to developing forecasts that are consistent with energy efficiency programs are well known to forecasters with experience in EE, so I have not cited references here.

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<sup>1</sup> To be comprehensive, forecasts should include economic and demographic factors.

<sup>2</sup> The Sustainable FERC Project sponsored the Brattle Group in a 2014 report "Quantifying the Amount and Economic Impacts of Missing Energy Efficiency in PJM's Load Forecast".

However, I know several Commissioners participate in NARUC, which co-sponsored a recent case study that may help in answering a whole host of forecasting issues. NARUC's co-sponsor was the Eastern Interconnection States Planning Council (EISPC) in a January 2015 report titled "Load Forecasting Case Study", available on NARUC's website.

Given what happened to PJM's forecasts in the 2011 EMP, and the fact that the BPU shares its analysis (forecasts) with other government agencies, university researchers, etc..., it is important that any new projections or claims about New Jersey's future energy use or emissions be based on a credible forecasting process. Forecasting methods and data used in the EMP should be open for public review, and open to criticism by academics and energy experts. This is part of public disclosure.

PJM's net energy forecast leaves out six categories of generation I identified in my August 11 statement: rooftop solar, CHP, other distributed generation, backup generators, "behind-the-meter generation", and generation which power plants consume on-site. The last four categories may have been omitted from the recent greenhouse gas inventory study conducted by Rutgers as part of periodic updates to monitor compliance with the Global Warming Response Act. I have only briefly looked at Rutgers' study. Any future inventories that Rutgers conducts should include these categories to assure comprehensive coverage of emissions from New Jersey's electric power sector.

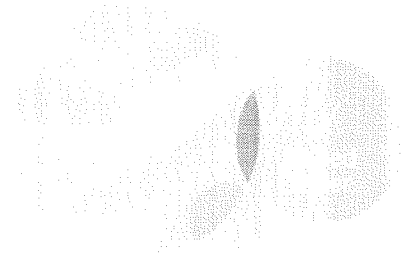
Emissions projections based the state's promotion of natural gas, our transportation priorities that underfund mass transit, and a return to normal economic growth would have been instructive. I understand that the Bloustein School's projections have not been updated since 2008.

Yours truly,

Franklin Neubauer  
Principal

WALTON F. HILL  
**Senior V.P. Regulatory Relations**

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August 24, 2015

VIA ELECTRONIC MAIL

Irene Kim Asbury, Secretary  
New Jersey Board of Public Utilities  
44 South Clinton Avenue  
Trenton NJ 08624

RE: Energy Master Plan update

Dear Secretary Asbury:

United Water New Jersey, for itself and on behalf of all the New Jersey subsidiaries of United Water, is pleased to submit these comments on the Energy Master Plan, in accordance with the NJBPU Notice of July 22, 2015, as updated. The goals and policy recommendations of the 2011 Plan are still very important to the state of New Jersey, and as stated in the Notice, good progress has been made in their direction but more can still be done. As noted in more detail below, the Plan goals and recommendations are also very important to the water industry, as energy efficiency and efficient water use will lower both energy and water costs to New Jersey utility customers.

The primary point to be made in these Comments is to note the strong connection between energy and water use. In fact NARUC recognized this connection when it adopted in November 2014 its "Resolution Regarding the Water-Energy Nexus" (attached), as recommended by the NARUC Committee on Water. In general terms, the Resolution recognizes that significant water resources are used to produce electricity and that water production and delivery requires substantial power resources. The Resolution recommends that States explore this connection and pursue regulatory reforms that can enhance water and energy efficiency, for the benefit of both industries and their customers. This is consistent with the goals of the Energy Master Plan.

**WATER AND ENERGY CONSERVATION PROGRAMS**

United Water is and has been very involved in the pursuit of energy and water efficiency. The Company's water conservation program is well-developed and includes but is not limited to the following elements:

- Student outreach: conservation classroom lessons and plant tours
- Community events: conservation materials and information
- Evapotranspiration program: tips on efficient lawn watering
- Speaking engagements: civic groups, environmental groups, etc.
- Symposia: customer and municipal workshops
- Public service announcements: TV, radio
- Website information: xeriscape, conservation kits, EPA WaterSense Program, annual conservation guide
- Customer Advisory Groups

Similar to the goals and recommendations of the Energy Master Plan, these conservation initiatives, together with governmental programs such as water efficient plumbing fixtures, have been successful, but there is still progress to be made. From December 2005 to December 2015, the annual system water for United Water New Jersey consumption has decreased from over 32 billion gallons to 29.8 billion gallons, and we look forward to further efficiencies in the future. In the same fashion as energy usage, these water usage reductions are not without financial consequences to the utility in the form of associated reduced revenue, and the New Jersey Chapter of the National Association of Water Companies is exploring revenue stabilization mechanisms to encourage continued water conservation efforts.

Energy conservation is also a priority at United Water. This is generally of critical importance but also particularly because energy usage peaks typically occur at the same time as water usage peaks; that is, on warm dry days, and these units of water and power are the most expensive. United Water is a member of the New Jersey Energy Coalition, and benefits from that membership include a greater corporate awareness of the energy industry and exposure to new ideas around energy efficiency and conservation.

United Water has added power monitoring to all large equipment at the Haworth Water Treatment Plant (WTP) and most large booster stations, and has developed performance metrics that can identify issues such as inefficient pumps, partially closed valves, or pumping into storage at peak times. As a result of ongoing pump efficiency testing, many large pumps have been replaced or rehabilitated. The Supervisory Control and Data Acquisition System (SCADA) employs computerized modeling of system demands and conditions in real time, allowing operators to identify high demand areas, set varying system pressures and enable power savings through efficient use of variable frequency pumps. Improved SCADA software also allows more efficient and conjunctive use of various supply sources. Natural gas generators are used in conjunction with hourly price monitoring to determine the cheapest power sources, and we have entered into a virtual energy market to receive payments through an energy aggregator. The Company is evaluating heat recovery from these generators to heat our nearby process buildings.

Again, these efforts have proven successful: total energy costs at the Haworth Treatment Plant have gone from almost \$9M in 2010, to a little under \$7M in 2014. In the same period, the cost per KWH is reduced from \$0.128 to \$0.103. We are also looking to add renewable energy production. United Water, along with our partner, the North Jersey District Water Supply Commission, recently announced a request for proposals redeveloping the 1.8 MW hydroelectric facilities on the Dundee Dam of the Passaic River.

## **NONREVENUE WATER AND DISTRIBUTION SYSTEM IMPROVEMENTS**

The control of lost water is also an important component of efficient energy and water use, as every gallon of water lost in the distribution system carries with it the cost of energy used to produce and pump it. The BPU recognized this issue when it adopted the rules permitting the Distribution System Improvement Charge. The surcharge permits expedited recovery of the cost of eligible distribution system capital expenditures, thus removing the financial disincentive associated with such improvements between base rate cases. This regulatory mechanism, also endorsed by a Resolution of the NARUC Water Committee, has helped to increase the rate at which water mains are repaired and replaced, thus addressing an important cause of water lost in the system. At United Water New Jersey, distribution system improvements have increased significantly, from less than a mile of main and six projects in 2010 to over seven miles of main and 33 projects in 2014. In part due to these programs, nonrevenue water has been reduced from over 11,000 million gallons annually in 2013 to less than 9,000 million gallons in 2014, a savings of over one billion gallons of water; also saving the energy which would have been required to pump it. While the Company was largely able to meet its service obligation during storm events, these replacement and rehabilitation programs also help considerably to maintain and improve system resilience.

Another important system improvement is the installation of enhanced metering systems, recently approved by the BPU for United Water New Jersey. These systems, using remote data collectors, have the capacity to gather meter reading data much more frequently than traditional monthly or quarterly schedules, making much more consumption data available to the Company and its customers. This will



Irene Kim Asbury, Secretary  
August 24, 2015  
Page 3

increase meter reading and billing accuracy, identify meter tampering, and facilitate conservation efforts, leak detection and the control of nonrevenue water.

## **ENVIRONMENTAL SUSTAINABILITY**

Aside from financial and cost implications, promoting efficient use of energy and water resources is critical for the environment and sustainable development. Protection of the environment is a keystone of the Energy Master Plan. As stated in the Plan, "The Christie administration is committed to continuing by example the Garden State's national leadership in furthering environmental objectives..." United Water and its parent Suez also place sustainability at the top of their corporate goals. Suez North America's 2014 Sustainable Development report notes "... a gathering resource crisis on a global scale", and commits the Company to goals and actions that "move cities, businesses and industries from an economy that overconsumes natural resources to one that optimizes management and use of resources." The Report establishes a roadmap based on ten Commitments including Water Resource Management, Energy and Climate, "Reduce, Reuse, Recycle", and Biodiversity and Ecosystem Restoration, among others. This Sustainable Development Report is closely aligned with the goals and recommendations of the Energy Master Plan, and Suez is now involved in developing the roadmap and commitments for 2016-2020.

## **CONCLUSION**

The United Water Companies and Suez North America support the goals and recommendations of the 2011 Energy Master Plan and have reflected those goals and recommendations in their own conservation, operating and capital plans. Good progress has been made toward the achievement of those goals, and the Companies look forward to continued collaboration with our regulators and the energy industry to continue that progress.

Very truly yours,



Walton F. Hill  
Sr. V.P. Regulatory Relations

WFH:kmk  
Attachment

cc: R. Iacullo  
J. Cagle  
L. Carrot  
J. Mastrokalos

### *Resolution Regarding the Water-Energy Nexus*

**WHEREAS**, The water-energy nexus describes a close relationship between two critically important sectors of the economy; *and*

**WHEREAS**, Today's energy extraction and electricity production processes require a tremendous amount of water; *and*

**WHEREAS**, The treatment and delivery of water and wastewater services requires a significant amount of energy, representing about four percent of all U.S. energy consumption each year, a share that could rise significantly as a result of the antiquated and inefficient nature of U.S. water and wastewater infrastructure, as evaluated by the American Society of Civil Engineers in its 2013 Report Card on U.S. Infrastructure; *and*

**WHEREAS**, Numerous research and government organizations, including the U.S. Department of Energy, have highlighted a range of opportunities for companies, including regulated utilities in both sectors to work together and with regulatory counterparts at the State and federal levels to provide efficiencies in water and energy usage in their respective industries; *and*

**WHEREAS**, Many newer thermoelectric power plants use significantly less water as a result of cooling processes that reuse water and other alternative methods; *and*

**WHEREAS**, Many energy production States are innovating and adopting new environmental quality standards that are aimed at promoting efficient water usage; *and*

**WHEREAS**, State regulatory commissions are encouraging that water used in the energy production process be recycled rather than disposed of; *and*

**WHEREAS**, Efforts by water utilities to enhance efficiency by replacing outdated water pumps, integrating "smart" information and communication technologies to identify leaks in real time and streamline other processes, and using a greater share of alternative energy to fuel operations, among other initiatives, have already yielded measurable reductions in the amount of energy used to deliver water and wastewater services; *and*

**WHEREAS**, The EPA is currently considering rules to reduce emissions of carbon dioxide from existing stationary sources throughout the country; *and*

**WHEREAS**, A provision of the EPA's proposed rules would provide States with considerable latitude to design programs to meet federally-mandated targets for cutting Statewide emissions; *and*

**WHEREAS**, States possess many of the tools needed to implement policies, programs, and incentives, to fully employ the water-energy nexus for the purposes of enhancing energy efficiency efforts that could also yield more reliable service, stable rates for consumers, and lower carbon emissions for States and the country as a whole; *and*

**WHEREAS,** A growing number of State regulatory commissions, environmental agencies, and legislatures are actively exploring opportunities for harnessing the water-energy nexus for these purposes; *and*

**WHEREAS,** As an example of its support of State commissions to appropriately regulate issues related to the water-energy nexus, in July 2009, the NARUC Board of Directors passed a resolution “Supporting State Regulation of Hydraulic Fracturing;” *now, therefore be it*

**RESOLVED,** That the National Association of Regulatory Utility Commissioners, convened at its 126th Annual Meeting in San Francisco, California, urges States, working with the appropriate federal authorities, to proactively explore the water-energy nexus and pursue regulatory reforms that might be needed to unlock further progress toward enhanced water and energy efficiency, recognizing and reiterating that States are well suited to effectively regulate their natural resources; *and be it further*

**RESOLVED,** That, as the EPA moves forward with its proposed rules for reducing carbon emissions from existing stationary sources, NARUC recommends that States be provided maximum flexibility to support energy efficiency measures stemming from the water-energy nexus and to incorporate those efforts, and their positive impacts on the environment, into any compliance plan that might emerge.

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*Sponsored by the Committees on Energy Resources and the Environment, Gas, and Water  
Recommended by the NARUC Board of Directors November 18, 2014  
Adopted by the NARUC Committee of the Whole November 19, 2014*

**MURRAY E. BEVAN**  
mbevan@bmgzlaw.com

August 24, 2015

**VIA ELECTRONIC AND REGULAR MAIL**

The Honorable Irene Kim Asbury  
Secretary, New Jersey Board of Public Utilities  
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***Re: Comments Regarding Updates to 2011 Energy Master Plan***

Dear Secretary Asbury:

On behalf of our client, the Retail Energy Supply Association (“RESA”),<sup>1</sup> please accept this letter regarding the Board of Public Utilities’ (“Board’s”) solicitation of comments for an update to the 2011 Energy Master Plan. As an active participant in both New Jersey’s competitive energy marketplace and prior Energy Master Plan proceedings, RESA’s membership is deeply familiar with the goals stated in the 2011 Energy Master Plan, as well as New Jersey’s progress in achieving them thus far. RESA appreciates the Board’s review and consideration of updates to the 2011 Energy Master Plan and welcomes this opportunity to provide comments.

Although RESA initially supported and continues to support many of the overarching objectives and policy recommendations outlined in the 2011 Energy Master Plan, RESA believes that certain sections require changes and/or further development. In particular, RESA is concerned that the Plan’s current recommendations proffered to support the goals of driving

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<sup>1</sup> The comments expressed in this filing represent the position of the Retail Energy Supply Association (RESA) as an organization but may not represent the views of any particular member of the Association. Founded in 1990, RESA is a broad and diverse group of more than twenty retail energy suppliers dedicated to promoting efficient, sustainable and customer-oriented competitive retail energy markets. RESA members operate throughout the United States delivering value-added electricity and natural gas service at retail to residential, commercial and industrial energy customers. More information on RESA can be found at [www.resausa.org](http://www.resausa.org).

down the cost of energy for all customers, reducing peak demand and promoting cost-effective conservation and energy efficiency measures are still insufficient to achieve meaningful progress towards these goals. RESA instead encourages the Board to update the 2011 Energy Master Plan to include policy recommendations that will have a much more significant impact on realizing these goals, including: (1) developing Advanced Metering Infrastructure (“AMI”) and requiring the Electric Distribution Companies (“EDCs”) to install interval meters for all customers; (2) significantly lowering the Basic Generation Service (“BGS”)- Commercial and Industrial Energy Pricing (“CIEP”) service threshold; (3) requiring the Electric Distribution Companies (“EDCs”) to hold more frequent procurements for the supply of their BGS- Residential and Small Commercial Product (“RSCP”) service; and (4) implementing renewable portfolio standard (“RPS”) requirements in a competitively neutral manner ensuring that TPSs can compete on equal footing with the EDCs. In addition to promoting reduced energy prices and more energy efficiency and conservation, these policy recommendations will improve energy resiliency, and emergency preparedness and response, which, as the Public Notice regarding this proceeding acknowledges, has become a priority in recent years following Superstorm Sandy and other major storms and weather events.

#### **I. Development and Provision of Advanced Metering Infrastructure**

As parties across the gamut discussed at the public hearings, driving down the cost of energy for all customers, reducing peak demand and promoting cost-effective conservation and energy efficiency are extremely important goals of the Energy Master Plan, and the Board should promote stronger policies to achieve them. Specifically, RESA believes that the 2011 Energy Master Plan should be updated to provide clear policy directives towards: 1) furthering the deployment of AMI, which includes interval meters, supporting telemetry equipment, and back office infrastructure for all customers in New Jersey, 2) ensuring that TPSs – with the consent of their customers – gain timely and efficient access to the interval usage data produced by those meters so that they may offer the innovative products and services aimed at delivering on the

energy conservation and energy efficiency goals<sup>2</sup>, and 3) ensuring that, once deployed, all load is settled at PJM based on that interval usage data. While the Plan's current call for energy efficiency and demand reduction in state buildings, incorporating aggressive energy efficiency in building codes and the like<sup>3</sup> are important steps, the most critical element in achieving these goals of the 2011 Energy Master Plan is providing all customers with the ability to take a more active role in managing their electricity costs and consumption, which is only possible with the full deployment of interval metering technology and access to their interval usage data. Specifically, the Plan's language should be modified from encouraging the Board to "monitor the development of smart meters" and considering a requirement for "broader implementation" to explicitly recommending that the Board require the EDCs to file implementation plans describing the steps, costs, and timeline to fully deploy AMI within their service territories. Such plans should be filed no later than December 31, 2016.

The advantages of requiring the EDCs to install interval meters for all customers flow to both individual customers, themselves, as well as to ratepayers as a whole. On the one hand, customers armed with information about their near real-time usage and associated costs are able to take actions to control their usage and reduce their monthly bill.<sup>4</sup> They can more easily shop for a TPS and choose electricity plans and products that help them meet their consumption and

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<sup>2</sup> Timely and efficient access entails TPSs to retrieve all of their customers' 48 hour old (or less) interval usage data at one time via flat files (or "Batch CSV" files) through each utility's secure supplier portal on a daily basis.

<sup>3</sup> As Policy Direction and Recommendations under Section 7.3.4 related to the goal of Cost-Effective Conservation, Energy Efficiency and Peak Load Reduction, the 2011 Energy Master Plan lists the following: Promote Energy Efficiency and Demand Reduction in State Buildings, Incorporate Aggressive Energy Efficiency in Building Codes, Redesign the Delivery of State Energy Efficiency Programs, Monitor PJM's Demand Response Initiatives, Expand Education and Outreach and Improve Natural Gas Efficiency.

<sup>4</sup> In jurisdictions where AMI has been deployed, suppliers have timely and efficient access to their customers' interval usage data, and their customers' load is settled at the RTO based on that data. As a result, suppliers – including many RESA members – provide customers with a variety of home energy management tools including: account management tools that allow customers to personally monitor their electricity use, set cost and usage alerts, and compare their energy use to that of their neighbors; cost and usage alerts – provided via email or text messages – that notify customers when they are approaching any cost or usage thresholds they have selected; home energy monitors that allow customers to track their usage in real time; and weekly summary emails that highlight the customer's electricity usage — and approximately what it costs — for the most recent week as compared to the week before it. This information is then used to generate an estimate of the next bill to help the customer better manage his/her electricity budget.

budgetary needs.<sup>5</sup> On the other hand, the full deployment of AMI benefits ratepayers as a whole because as more customers curtail their usage during periods of peak demand, electricity prices are reduced for all New Jersey customers, one of the five overarching goals of the 2011 Energy Master Plan. The Board provides a host of energy efficiency incentives and programs to customers, but without AMI and timely and efficient access to the data interval meters provide, there is simply no incentive nor means for customers to take control of their electricity usage.

In addition to these benefits, updating the 2011 Energy Master Plan to promote the deployment of AMI would support the Board's goal of improving energy resiliency, and emergency preparedness and response following Superstorm Sandy and other major storms and weather events. Indeed, the Board has recognized that a smart electric grid—inclusive of interval meters—aids the EDCs with outage management. The need for interval meters became all too apparent during the recent storm events in 2011 and 2012, after the 2011 Energy Master Plan had been developed. Despite the obvious need for additional interval meters, New Jersey has fallen behind other mid-Atlantic states, such as Pennsylvania, Delaware, Maryland, and the District of Columbia in developing a smart grid system. Therefore, the Board should modify the 2011 Energy Master Plan to include a policy recommendation explicitly requiring the EDCs to develop AMI, to install interval meters for all customers in New Jersey, to make that data available to customers and TPSs in a timely efficient manner, and to settle all load based on that interval meter data.

## **II. Reduction of the BGS-CIEP Threshold**

As a further means to achieve the goals of driving down the cost of energy for all customers, reducing peak demand and promoting cost-effective conservation and energy efficiency, the 2011 Energy Master Plan should be updated to recommend further reductions of the BGS-CIEP threshold to require all customers using 400 kW and above to be on BGS-CIEP pricing beginning in EY 2017 and to require all customers using 100 kW and above to be on

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<sup>5</sup> Such as pricing plans that encourage consumers to shift usage and conserve, or other value-added products

BGS-CIEP pricing by EY 2019. RESA believes that requiring more customers to be on BGS-CIEP will promote energy efficient products and services, as well as deliver just and reasonable prices, while also providing customers with the benefits of greater choice, valuation and innovation.

Customers taking 100 kW to 400 kW peak load demand stand to reap significant benefits from mandatory BGS-CIEP pricing, because it better incents them to choose electric products and services that best fit their particular needs on many fronts, including price risk tolerance, environmental objectives and interest in particular energy conservation and efficiency programs. Under the current structure, these customers are needlessly sheltered from real-time pricing, and they lose the incentive and necessary data to make strategic decisions regarding their energy consumption. As a consequence, these customers miss out on the benefits of a more competitive marketplace, including reduced overall energy costs and access to energy efficiency measures, which is contrary to the goals of the 2011 Energy Master Plan.

It is important to recognize that reducing the BGS-CIEP threshold may also benefit remaining BGS-RSCP customers by reducing BGS-RSCP auction prices, which is another goal of the 2011 Energy Master Plan. Specifically, wholesale suppliers worry about migration risk with respect to customers not subject to mandatory BGS-CIEP pricing and likely factor such risk into their price offerings. With three year BGS-CIEP commitments, there is the real possibility that sometime during the three-year term, market prices could suddenly rise above the BGS price and customers would swarm back to BGS service. Reducing the threshold to 400 kW in EY 2017 and to 100 kW in EY 2019 reduces the migration risk, at least for customers above these thresholds.

At the current threshold of 500 kW, New Jersey lags behind other restructured states and maintains the highest CIEP threshold of any restructured market. For instance, the New York Public Service Commission has ordered mandatory hourly pricing for NYSEG customers 300 kW and higher, National Grid customers 250 kW and higher by 2013, Central Hudson customers 300 kW and higher and Rochester Gas & Electric customers 300 kW and higher. Illinois now requires Commonwealth Edison to provide hourly-priced default service to customers using 101



kW and higher while Ameren-IL sets the threshold at 150 kW. In Pennsylvania, the hourly pricing threshold ranges from 100 kW to 500 kW depending on the utility. Finally, Massachusetts mandates quarterly priced default service for its medium and large commercial and industrial customers using over 200 kW.

As evidenced in the past by New Jersey and currently in other states, a progressive reduction in the CIEP threshold is good policy because it enables an increasing class of New Jersey customers to realize the benefits of real-time pricing over time and furthers the goals of a competitive electric market. Moreover, it sends the right signal to both existing and potential suppliers by encouraging them to remain in or enter into the marketplace and offer a variety of products and services to these customers. Accordingly, RESA believes that the 2011 Energy Master Plan should be modified to recommend a reduction in the BGS-CIEP threshold to 400 kW effective in EY 2017 and to 100 kW in EY 2019.

### **III. More Frequent Procurements for BGS- RSCP**

In order to further the goals of driving down the cost of energy for all customers, reducing peak demand and promoting cost effective conservation and energy efficiency, the 2011 Energy Plan should also be updated to promote a transition of the BGS procurement process away from the laddered-three-year contracts currently employed in the BGS-RSCP auction and towards more frequent procurements of shorter term products held closer to the delivery date. Such a transition would result in more market reflective default service pricing because it minimizes the time over which the default price can diverge from actual market prices.

Under the current BGS-RSCP structure, customers pay subsidized prices that are either artificially low or high for electricity based on a three-year blended average. The current BGS structure has resulted in customers paying more than they should have over the last few years for electric supply in contravention of the goals stated in the 2011 Energy Master Plan. This is because customers have had to account for higher costs related to market conditions that occurred in the past that are completely divorced from the current environment of low natural gas prices and reduced electricity demand than if the Board used a shorter term procurement

system. By recommending a policy shift to more frequent procurements for BGS-RSCP customers of shorter term products, the updated 2011 Energy Master Plan will enable these customers to fully realize the benefits of more market reflective pricing.

Accordingly, the 2011 Energy Master Plan should be updated to promote a policy recommendation of quarterly pricing for all commercial and industrial customers and annual pricing for all residential customers. The transition could be structured such that the new quarterly and yearly pricing structure would make up one-third of the price for the commercial and industrial load and one-third of the price for the residential load, respectively, during the first energy year starting in EY 2017. The remaining two-thirds would have already been procured in prior auctions, and, therefore, two-thirds of the June, 2016 price is known today. The pricing structure would be adjusted quarterly for commercial and industrial customers and annually for residential customers, until it was fully phased in over three years. Impact on customers would therefore be gradual.

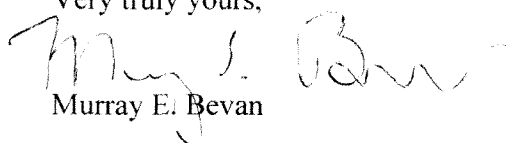
New Jersey again falls far short of surrounding states with competitive retail electric markets in its current default price structure. For example, Massachusetts has a semi-annual procurement of contracts with terms of no greater than one year for RSCP customers with peak demands below 200 kW. Maryland's quarterly priced default service applies to customers as small as 25 kW, and customers below 25 kW receive a default service price based on procurements held every six months containing a portfolio mix of contracts with terms of no greater than two years. The current utility default service plans in Pennsylvania use either quarterly or semi-annual competitive auctions to procure a blended portfolio of contracts with terms up to two years in length. In addition, the Pennsylvania Public Utility Commission has also expressed a desire to move towards 100% quarterly procurement in future default service plans. Finally, New York's default service below hourly-priced thresholds is a blended portfolio of spot market prices and a series of short-term and medium-term contracts, most of which do not exceed one-year. RESA believes that the Board should follow the lead of these other states and promote a policy transition towards more market-reflective pricing as detailed above in the updated 2011 Energy Master Plan.

**IV. Implementation of RPS Standards in a Competitively Neutral Manner**

The 2011 Energy Master Plan's goal of maintaining support for the renewable energy portfolio standard of 22.5% of energy from renewable sources by 2021 is commendable. RESA agrees with many of the parties who spoke at the hearings that promoting renewable energy and energy efficiency measures are important goals worthy of the Board's support. RESA in the past supported and continues to support New Jersey's ambitious renewable energy and energy efficiency goals. Many RESA members proudly offer "green" electricity and demand response products as well as energy efficiency services. However, as the Plan itself recognizes, renewable resources in many cases continue to be more expensive than conventional fuel technologies, at least to the extent they can be developed in the State. While there is little question that some level of incentives and subsidies may be appropriate for renewable resources that can reduce reliance on increasingly expensive fossil fuels, RPS requirements must be implemented in a competitively neutral manner that ensures that TPSs can compete on equal footing with the EDCs. RESA believes that the 2011 Energy Master Plan should be updated to insure that such a policy is put in place.

Once again, RESA supports the Board's review and provision of updates to the 2011 Energy Master Plan in order to achieve the overarching goals and policy recommendations stated therein. In developing updates to the Plan, RESA encourages the Board to take into account its proposals stated herein.

Please do not hesitate to contact me with any questions. Thank you.

Very truly yours,  
  
Murray E. Bevan