From: M J
Sent: Sunday, August 23, 2015 3:54 PM
To: EMPupdate
Cc: Greg Auriemma
Subject: 2011 New Jersey Energy Master Plan

SIERRA CLUB

Founded in 1892

Ocean County Group
P. O. BOX 4520
BRICK, N.J. 08732

Dear Commissioner Mroz and Commission Members,

As the Conservation and Vice-Chair of the Sierra Club, Ocean County Group, I submit the following comments in regards to the update of the New Jersey Energy Master Plan of 2011:

I – **Climate Change/worldwide and domestic:**

For years people have doubted "Global Warming" and/or "Climate Change" is real, but one can stop wondering. New research evidence shows May 2015 has been the hottest month on record! And July is not far behind. NASA as well as NOAH have evidence that sea level rise is happening faster than previously predicted as temperatures increase; at 3.6 degrees F (a number expected to exceed) sea levels will rise 20 feet! Higher sea level means coastal flooding will increase; *a rise of 1 foot can erode beaches up to 300 feet*, and *a rise of 3 feet will put 7,000 square miles of the U.S. shoreline under water!*

There is no question that the warming of the planet is caused by burning fossil fuels such as coal, gas and oil for hundreds of years. It must be emphasized though that these fossil fuels are finite reserves of the planet. Coal deposits built up over thousands of years, as well as gas and oil. This is not just a New Jersey problem, but a national and even worldwide dilemma.
An estimated 400,000 people demonstrated in New York City in September 2014, and more around the world, to make policy makers understand: *The World needs ALTERNATIVE ENERGY SOURCES.*" Even the President of the Philippines demanded after Typhoon Haiyan which devastated his islands, that the world stops burning fossil fuels! And that follows the plea by his Eminence Pope Francis.

II – **Alternative Energy Sources:**

A - Solar Installations:

One alternative to fossil fuels are solar installations; they can now be found on people's homes, in back yards, on former brown fields as well as landfills, and over parking areas at shopping malls, college campuses, etc. The cost of solar fields have come down and have become very popular with the population, bringing cleaner air, less human illnesses like asthma, extreme weather events on infrastructure or insurance as well as the impact of changing climate patterns on timber assets.

B – Wind Energy:

For the BPU to claim that initial costs of establishing wind energy producing installation are bogus for these reasons:

1) any new pipeline installation or an update on rail lines brings with it increased costs at the beginning which may or may not be passed on to the consumer;

2) the same may be true for wind mills, but Atlantic County already has an established windmill field near Pomona (it's been there for years) with no increase to consumer energy bills.

European countries have come to realize that fossil fuels are damaging to their population as well as their businesses and have been converting to wind energy many years ago.
Windmills are on land and in the seas and producing clean energy to unexpected levels. Germany and France are also decommissioning their nuclear plants since mining for atomic/nuclear product is also a dirty business for the environment and the workforce.

C – Geothermal Energy and Seawater/Ocean Movement:

There are other various methods found in other parts of the planet that can be incorporated in a meaningful way to enhance the energy problem of the world and especially New Jersey.

In closing I reiterate: CLIMATE CHANGE is real and we need ALTERNATIVE ENERGY! The EMP *must support and expand clean energy* as well as public transportation to reduce air pollution and our reliance on fossil fuels. Energy efficiency is the most cost effective way to reduce greenhouse gases and bring energy costs down.

We thank you in advance for doing the right thing and reducing our use of fossil fuels and increasing our alternative energy sources.

Sincerely,

(signed) Margit Meissner-Jackson
Conservation/Vice-Chair

Sierra Club Ocean County Group

Comments on the NJ Energy Master Plan

Aug. 23, 2015

By Klaus Rittenbach, retired engineer, resident of NJ
BSE Degree from Princeton University

I'm a member of a several environmental groups, including Climate Action New Jersey, which has about 500 members, and Citizens' Climate Lobby, which has about 11,000 members worldwide. These include what I presented at the Aug. 13 and 17th hearings, but they include additional comments, references, and additional recommendations.

My comments mainly focus on three main areas:

1. Building and retrofitting our houses and our commercial buildings to a group of standards called the German Passive House Standards, which could meet your overarching goal of driving down the cost of energy for all customers, as well as your goal of rewarding energy efficiency and energy conservation and reducing peak demand.
2. Driving down the cost of energy for all customers by doing a full-cost accounting in the Energy Master Plan, which includes both market cost and the cost of externalities.
3. Specific recommendations for each of the above.

1. German Passive House Standards

Your number one overarching goal is to drive down the cost of energy for all customers, and your number three goal is to reward energy efficiency and energy conservation and reduce peak demand. We can achieve both of those goals very cost-effectively by building and retrofitting our houses and our commercial buildings to a group of standards called the German Passive House Standards. Houses built to the German Passive House standards are incredibly energy efficient, saving 75-90% of the energy needed in a conventional building. That's significantly better than even LEED Platinum. That meets your goal #3. By implementing these standards, we can likewise drive down the customer's utility bills by 75-90%, because the will be using that much less energy. That meets your goal #1.

The German passive house standard is the fastest growing energy performance standard in the world. Over 30,000 buildings, both regular homes and commercial buildings built to this standard have been completed all over the world, and it's becoming very popular in NYC, in Philadelphia, and other places in the U.S.

NYC Mayor Bill De Blasio specifically calls out the Passive House Standard as a pathway to NYC's aggressive 80% CO2 emissions reduction by 2050 in the "One City: Build to Last" plan. (Source:http://www.nyc.gov/html/builttolast/assets/downloads/pdf/OneCity.pdf)

The German Passive House standard was developed in Germany and Sweden in the 1990's It is so energy efficient that many passive houses have only a small electric space heater as their only source of heat. Even in the winter, often no heat is needed at all, just human body heat and the sunlight coming in through the windows is sufficient to keep the house comfortable. The passive house standard's strength lies in the simplicity of its approach; basically you build a house that is super-insulated, with an active ventilation system that recovers the heat of the exhaust. Details can be found at the US Passive House Institute Website, http://www.phius.org.

You might think a house like this would be very expensive. This is what surprised me the most. The total building costs are only a little more, about 5-10% more than building a conventional house or building! (Source: http://www.phius.org/what-is-passive-building-/faq).

There's also a very similar passive house standard called the EnerPHit Standard, which is almost as efficient and is geared for retrofitting older buildings and homes.

A very significant portion of NJ's energy usage is for heating and cooling. About 50% of our residential energy use is for heating and cooling. So if every building in NJ were built to the German passive house standard or retrofitted the EnerPHit standard, it would greatly help to meet our energy conservation targets by 2050.

Implementing the Passive House Standard in New Jersey will create thousands of local jobs. According to a study done in Canada from 2002-2012, every $1 million invested in energy efficiency programs can create 57 job years. (Source: https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/www/pdf/publications/emmc/14-0176_Energy%20Efficiency%20Update%202014_e.pdf)

Thus, in order to drive down the cost of energy to consumers, to meet our energy conservation goals and to reduce peak demand, I have the following recommendations:

a) Include the German Passive House and EnerPHit standards in the EMP as important, and highly recommended ways to conserve energy in NJ.

b) Reward energy efficiency by recommending in the EMP that these standards be included in the NJ Clean Energy Program, and

c) Include a recommendation in the EMP that the Passive House Standard should be an alternate energy code compliance path to streamline the building permitting process. This incentivizes developers and home builders by eliminating long wait times for building permits. Time is money in construction.

I also agree with the comments and recommendations that passive house expert Shawn Torbert presented at the Aug. 13, 2015 BPU EMP hearings in Trenton. He is a LEED Accredited Professional, Certified Passive House Designer (CPHD), CSI, and Board Member of New York Passive House.

2. Full-cost Accounting in the EMP

Your number one overarching goal, is to drive down the cost of energy for all customers. Costs are extremely important, and when we talk about costs of various forms of energy, we need to be sure that we include the total costs in our calculations. Economists call this full-cost accounting.

There are the market costs, but there can also be very significant external costs of the various types of energy which economists call externalities; both conservative and liberal economists agree that we need to take the externalities into account. This includes social costs.

Here's a personal example of one of the many negative externalities of burning fossil fuels: I happen to have asthma, and my son has asthma. I pay quite of bit money for our asthma medications. Every time coal is burned that makes the air quality worse and increases our health care costs, not just for me but all the people in New Jersey who suffer from respiratory diseases. It also increases the insurance premiums for everyone in New Jersey. That's just one example of the many externalities.

We need to include estimates of the negative externalities in the Energy Master Plan, and those externalities need to be fully considered in a full-cost accounting when making a decision about which forms of energy NJ will support and promote.

Estimates of the externalities of emitting carbon pollution vary quite a bit, depending on what assumptions are made, and what they include in their calculations. The EPA currently uses a price of $40 per metric ton for the externalities of carbon pollution to inform its policymaking. However, many scientists and economists think this number is way too low; that it doesn't fully reflect the latest scientific research.

Lord Stern and Simon Dietz of the London School of Economics calculated a price of $103 per ton of carbon pollution. A research paper by Cambridge economist Chris Hope calculated a price of $106 per ton. A 2015 research paper by Kenneth Judd from Stanford University and others concluded that the external cost could be as high as $220 per ton.
(Sources:http://www.nature.com/nclimate/journal/v5/n5/full/nclimate2570.html;
http://www.carbonbrief.org/blog/2015/03/cost-of-carbon-should-be-200-higher-today,-say-economists)

So the Energy Master Plan, should include a table for each type of energy, including coal, oil, natural gas, nuclear, onshore and offshore wind and solar, listing the externalities for each type of energy. It should include a range of estimates of the externalities of each type of energy, from a low of $40 per ton to a high of $220 per ton.

When you take those externalities into account, it significantly affects the assessment of which forms of energy have the lowest levelized cost, in other words the cost spread out over the useful life of the system. When you do a full cost accounting, adding in all the externalities, then energy efficiency and conservation measures become much more cost-competitive because they not only save energy, but also reduce the amount of carbon pollution. Coal, on the other hand, becomes much less cost-competitive. (Source: http://www.skepticalscience.com/true-cost-of-coal-

power.html) Other forms of energy fall somewhere in between. This all needs to be made clear in the Energy Master Plan.

When the EMP talks about driving down the cost of energy for all customers, we need to make sure that we include all the costs of various forms of Energy in the EMP, both the market costs and the externalities, by doing a full-cost accounting and evaluating each recommendation from the perspective of full-cost accounting. Otherwise, we're just fooling ourselves into thinking that we're saving money, when in fact we'll end up collectively spending much more, if we don't take into account the externalities.

I agree with the recommendations of Jeff Tittel, Director of the NJ Sierra Club and Doug O'Malley of Environment New Jersey, who testified at the Aug. 11, 13, and 17 2015 BPU hearings. Their recommendations should be included in the EMP.

I also agree with the recommendation of Professor Ron Hutchison of Richard Stockton College who testified at the Aug. 17 2015 BPU hearings. He said the NJ should use the 2015 New York State Energy Plan (http://energyplan.ny.gov/Plans/2015) as a model to improve the NJ Energy Master Plan. The New York State Energy Plan is far more comprehensive and lays out ambitious, yet achievable goals.

3. Specific Recommendations

In order to drive down the total cost of energy to consumers, to meet our energy conservation goals and to reduce peak demand, I have eight recommendations:

1) Include the German passive house and EnerPHit standards in the EMP as important, and highly recommended, ways to conserve energy in NJ.

2) Reward energy efficiency by recommending in the EMP that these standards be included in the NJ Clean Energy Program.

3) Include a recommendation in the EMP that the Passive House Standards should be an alternate energy code compliance path to streamline the building permitting process.

4) Include in the EMP a full-cost accounting of the various types of energy, including coal, oil, natural gas, nuclear, wind and solar, and various types of energy conservation measures, Include a range of estimates of the externalities and social costs.

5) Include a table of the various types of energy and energy conservation with the levelized market costs of each, along various estimates of the externalities, from $40 to $220 per metric ton of carbon pollution.

6) Make recommendations in the Energy Master Plan about which types of energy and energy conservation to support, based on not just on market price but based on full-cost accounting, including the total of externalities, social costs, and market costs.

7) Include into the EMP the recommendations of Jeff Tittel of the Sierra Club and Doug O'Malley of Environment New Jersey at the Aug. 11, 13, and 17, 2015 BPU hearings.

8) Use the 2015 NY State Energy Plan (http://energyplan.ny.gov/Plans/2015) as a model to improve the NJ Energy Master Plan.

Summary:

In order to drive down the cost of energy to consumers, to meet our energy conservation goals and to reduce peak demand, include the German Passive House and EnerPHit standards in the EMP as important, and highly recommended ways to conserve energy in NJ.

When the EMP talks about driving down the cost of energy for all customers, we need to make sure that estimates of all the costs of various forms of Energy are included in the EMP, both the market costs and the externalities, by doing a full-cost accounting and evaluating each recommendation from the perspective of full-cost accounting.

If you would like more info about any of this, please e-mail me.

By Klaus Rittenbach
Retired Engineer, BSE Degree from Princeton University
Resident of NJ for more than 50 years
Member of Climate Action New Jersey
Member of Citizens Climate Lobby

From: Stephan Cizmar [redacted]
Sent: Sunday, August 23, 2015 11:54 PM
To: EMPupdate
Subject: KDC Solar Power Plant: Bedminster

To whom it may concern,

I am writing in to express my concern with the proposed KDC solar power plant on Country Club Road in Bedminster. This plant is being built on protected farmland and will bring no benefit or value to the citizens living in Bedminster, the energy will be generated for a private company. Please stop this measure, the costs outweigh the benefits by tenfold.

Thank you,

Stephan Cizmar

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Kathleen Bush <feedback@lcv.org>
Sent: Sunday, August 23, 2015 10:51 AM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

As a New Jersey resident, I'm writing to ask you to update the Energy Master Plan with much more focus and investment in clean energy and achieving greater energy efficiency, and less dependence on natural gas.

Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

Kathleen Bush

Long Valley, NJ 07853-3063

[redacted]

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of jon granziel <feedback@lcv.org>
Sent: Sunday, August 23, 2015 8:49 AM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

As a New Jersey resident, I'm writing to ask you to update the Energy Master Plan with much more focus and investment in clean energy and achieving greater energy efficiency, and less dependence on natural gas.

Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

jon granziel

[redacted]
Newark, NJ 07106-3136

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Jennifer Books <feedback@lcv.org>
Sent: Sunday, August 23, 2015 7:49 AM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

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Sincerely,

Jennifer Books

Basking Ridge, NJ 07920-1126

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of JD Dallam <feedback@lcv.org>
Sent: Sunday, August 23, 2015 7:19 AM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

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Sincerely,

JD Dallam

Hoboken, NJ 07030-6315

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Ann Kelly <feedback@lcv.org>
Sent: Sunday, August 23, 2015 10:52 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

As a New Jersey resident, I'm writing to ask you to update the Energy Master Plan with much more focus and investment in clean energy and achieving greater energy efficiency, and less dependence on natural gas.

Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

This is wrong for the world, country, and state! We must move to truly renewable energy, not one that destroys more natural resources such as our water, air, and soil.

Sincerely,

Ann Kelly

Mount Laurel, NJ 08054-3456

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Robert Bakelaar <feedback@lcv.org>
Sent: Sunday, August 23, 2015 10:51 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

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Sincerely,

Robert Bakelaar

Mahwah, NJ 07430-2931

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Cathy Dondiego <feedback@lcv.org>
Sent: Sunday, August 23, 2015 10:21 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

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Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

Cathy Dondiego

West Milford, NJ 07480-4019

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of bonnie kissel <feedback@lcv.org>
Sent: Sunday, August 23, 2015 6:21 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

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Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

bonnie kissel

Fort Lee, NJ 07024-6743

[redacted]

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Brad Mitchell <feedback@lcv.org>
Sent: Sunday, August 23, 2015 6:20 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

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Sincerely,

Brad Mitchell

[redacted]
Linden, NJ 07036-2131

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Jacqueline Gilbert <feedback@lcv.org>
Sent: Sunday, August 23, 2015 5:22 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

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Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

Jacqueline Gilbert

Highland Park, NJ 08904

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Chrystal Schivell <feedback@lcv.org>
Sent: Sunday, August 23, 2015 4:21 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

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Sincerely,

Chrystal Schivell

Princeton, NJ 08540-3608

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of frank armocida <feedback@lcv.org>
Sent: Sunday, August 23, 2015 3:20 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

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Sincerely,

frank armocida

Frenchtown, NJ 08825-1006

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Julie Garber <feedback@lcv.org>
Sent: Sunday, August 23, 2015 2:22 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

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Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

Julie Garber

Landing, NJ 07850-0326

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Lynn Poinier <feedback@lcv.org>
Sent: Sunday, August 23, 2015 12:24 PM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 23, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

As a New Jersey resident, I'm writing to ask you to update the Energy Master Plan with much more focus and investment in clean energy and achieving greater energy efficiency, and less dependence on natural gas.

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Sincerely,

Lynn Poinier

Allenhurst, NJ 07712-5281

State of New Jersey
DIVISION OF RATE COUNSEL
140 EAST FRONT STREET, 4TH FL
P. O. BOX 003
TRENTON, NEW JERSEY 08625

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

STEFANIE A. BRAND
Director

August 24, 2015

Via Hand Delivery
Irene Kim Asbury, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Post Office Box 350
Trenton NJ 08625-0350

Re: 2015 New Jersey Energy Master Plan Update

Dear Secretary Asbury:

Enclosed for filing please find an original and ten copies of the Division of Rate Counsel's Comments in the above matter. These comments are being submitted pursuant to the Board of Public Utilities' Notice dated July 22, 2015. These comments will also be circulated electronically to the email list server (EMPupdate@bpu.state.nj.us) used by the Board for this filing.

We have also enclosed one additional copy of the materials transmitted. Please stamp and date the copy as "filed" and return to our courier. Thank you for your consideration and attention to this matter.

Respectfully submitted,

STEFANIE A. BRAND
DIRECTOR, DIVISION OF RATE COUNSEL

By: Sarah H. Steindel
Sarah H. Steindel
Assistant Deputy Rate Counsel

c: Service List (via electronic e-mail distribution list)

DIVISION OF RATE COUNSEL COMMENTS
2015 ENERGY MASTER PLAN UPDATE
AUGUST 24, 2015

The Division of Rate Counsel ("Rate Counsel") is pleased so submit comments in response to the Notice issued by the Board of Public Utilities ("BPU") on July 22, 2015 concerning an update (the "2015 EMP Update") of the 2011 Energy Master Plan ("2011 EMP"). These comments will focus first on the process for updating the Energy Master Plan. Then, as requested in the Notice, these comments will address the State's progress toward the 2011 EMP goals and recommendations, and emerging issues since 2011.

I. Process for Updating Energy Master Plan

Initially, Rate Counsel wishes to comment on the statutorily-mandated process for updating an Energy Master Plan ("EMP"). The governing statute, N.J.S.A. 52:27F-14, requires that members of the public be afforded an opportunity to comment on the actual updated plan when it is completed. Subsection (c) of that statute requires the Energy Master Plan Committee ("Committee"), "[u]pon preparation of [the initial] master plan, and each revision thereof," to "cause copies thereof to be printed," distribute copies to the Governor and the legislature, and advertise "the availability of such draft plan from the offices of the [C]omittee" in a manner that will "reach the greatest possible number of citizens of New Jersey..." N.J.S.A. 52:27F-14(c). Thereafter, members of the public are required to be afforded the opportunity to comment upon "the overall content of the plan ...." N.J.S.A. 52:27F-14(c)(1).

The Notice issued by BPU's Secretary July 22, 2015 is not a draft EMP update, but rather only a Notice soliciting public comments in preparation for the Committee to develop a the actual update. The Notice does not disclose the "overall content of the plan" the Committee proposes to develop. It is only a request for comment on the existing 2011 EMP and a "bullet

point" list of four emerging issues that have arisen since 2011. It also does not provide the required outline of "long-term objectives" or "interim implementation measures consistent with said objectives." N.J.A.C. 52:27F-14(b). It offers no proposed findings, goals or policy recommendations for interested parties to either support, oppose, or offer suggestions for improving. An opportunity for comment is not meaningful unless the agency provides notice of the specific actions under consideration. See, In the Matter of the Provision of Basic Generation Service for the Period Beginning June 1, 2008, 205 N.J. 339, 358-61 (2011). The July 22, 2015 Notice does not accomplish this. It states that the 2011 EMP is being updated, but does not specify what updates are being proposed.

In addition, Rate Counsel notes that in the past EMP Updates have included data showing the State's progress toward the goals established in the preceding EMP update. Without access to the data that provides the basis for proposed updates, it is difficult to comment at a level of detail that would be most helpful to the update process.

II. Progress Toward 2011 EMP Goals and Recommendations

A. Driving down energy costs for all consumers

Rate Counsel takes issue with the statement in the Notice that New Jersey "has fallen from a high energy cost state to a range that falls within the national average for total energy costs (electricity, natural gas, fuel oil and gasoline)." The Notice neither provides the basis for this conclusion nor specifies the sources of the underlying data. It is clear, however, that New Jersey has high electricity costs. In 2011, at the time of the last EMP, New Jersey was reported by the United States Energy Information Administration ("EIA") as having the seventh highest electricity rates for all sectors, with rates 44 percent above the national average and 34 percent above the rates reported for the other mid-Atlantic states. For residential customers, New

Jersey's electricity rates were 38 percent above the national average and 28 percent above residential electricity rates reported for other mid-Atlantic states.[1]

As of 2014, New Jersey ranked tenth in electricity in average retail electricity prices for all sectors, and for residential customers. However, while New Jersey's relative ranking has declined, this is not because electricity prices have declined, but because other states have surpassed New Jersey with higher prices. New Jersey's electricity prices remain significantly higher than the national average. For customers in all sectors, New Jersey's average price was $0.1401 per kilowatt-hour, 34 percent higher than the national average of $0.1045 per kilowatt-hour. For residential customers, New Jersey's average price was $0.158 per kilowatt-hour, 26 percent higher than the national average of $0.125 per kilowatt-hour. New Jersey's electricity prices for all sectors are now 29 percent higher than they were in 2005, and residential electricity rates are currently 35 percent higher than they were in 2005.[2] Today, an average New Jersey household pays 12 percent more for a comparable amount of electricity than it would have a decade ago, even after adjusting for inflation.

Moreover, the State has recently approved a number of large programs, such as PSE&G's Energy Strong, that will increase prices for electricity distribution, and our regional grid operator, PJM, has made changes to its Reliability Pricing Model that appear likely to increase wholesale capacity prices. New Jersey remains, and likely will continue to be a high-cost state for electricity.

New Jersey, like other states, has achieved some reduction in heating costs due to recent decreases in natural gas prices. If natural gas prices remain low, this could help maintain stable

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[1] See U.S. Energy Information Administration ("EIA") report on Average retail price of electricity to ultimate customers by end-use sector, by state--annual average retail price of electricity for all sectors and for residential sector, from EIA Electricity Data Browser, available at: http://www.eia.gov/electricity/data/browser/
The other mid-Atlantic states are Delaware, Maryland, Pennsylvania and Virginia.

[2] Id.

electricity prices. New Jersey also benefits from low gasoline prices relative to other states. While low natural gas and gasoline prices reduce New Jersey's overall energy costs, it is important to recognize that prices for these two fuels are not substantially influenced by New Jersey energy policy. Natural gas and gasoline prices, while beneficial to the State, are not a good indicator of success in meeting the 2011 EMP goal of driving down energy costs for all consumers.

B. Maintaining support for renewable energy portfolio standards

1. Introduction

New Jersey has made great strides in the development of renewable energy, and in particular, solar energy. However, as noted in the 2011 EMP, the length of those strides needs to be tempered with some measure of cost-effectiveness that strikes a "sensible balance"[3] with "economic and political realities."[4] The 2011 EMP also emphasized that future renewable energy initiatives and programs be measured against a "rigorous testing of net economic benefits to New Jersey." [5]

Rate Counsel strongly supports these big picture goals in the development of the renewable energy component of the 2015 EMP Update. Much of the success of New Jersey's solar energy development can be attributed to the financial support provided by New Jersey ratepayers. In addition, a number of favorable market conditions have made solar installations considerably more affordable than was imaginable when the state embarked on setting a leadership path for solar energy almost a decade ago.

Rate Counsel recommends that the 2015 EMP Update continue to move away from financial support from ratepayers and toward an industry guided by competitive market forces.

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[3] 2011 EMP, p. 5.
[4] 2011 EMP, p. 4.
[5] 2011 EMP, p. 3.

The 2015 EMP Update should continue to support New Jersey's currently-approved commitments and policies for solar energy, but refrain from adopting any new policies, initiatives, or levels of financial support. Rate Counsel bases this recommendation on two premises.

The first premise is that the New Jersey solar market has been supported almost entirely by ratepayers, the majority of which have not installed solar systems on their homes, businesses, or industries. New Jersey ratepayers should not be required to continue to: (a) financially support New Jersey's solar industry and; (b) insulate the New Jersey solar industry from the risk and challenges associated with operating in competitive energy markets. It is time to stop asking New Jersey ratepayers to step in whenever the industry senses a fluctuation in market conditions that may only marginally challenge its profitability. At some point, the solar energy industry, like any other aspect of the energy business, needs to stand on its own two feet. Rate Counsel recommends that the 2015 EMP Update start the process of asking the industry to assume more responsibility for its own development by refraining to adopt any new solar energy initiatives, and by continuing to evaluate existing and future programs on the net economic benefits they are anticipated to create for New Jersey ratepayers.

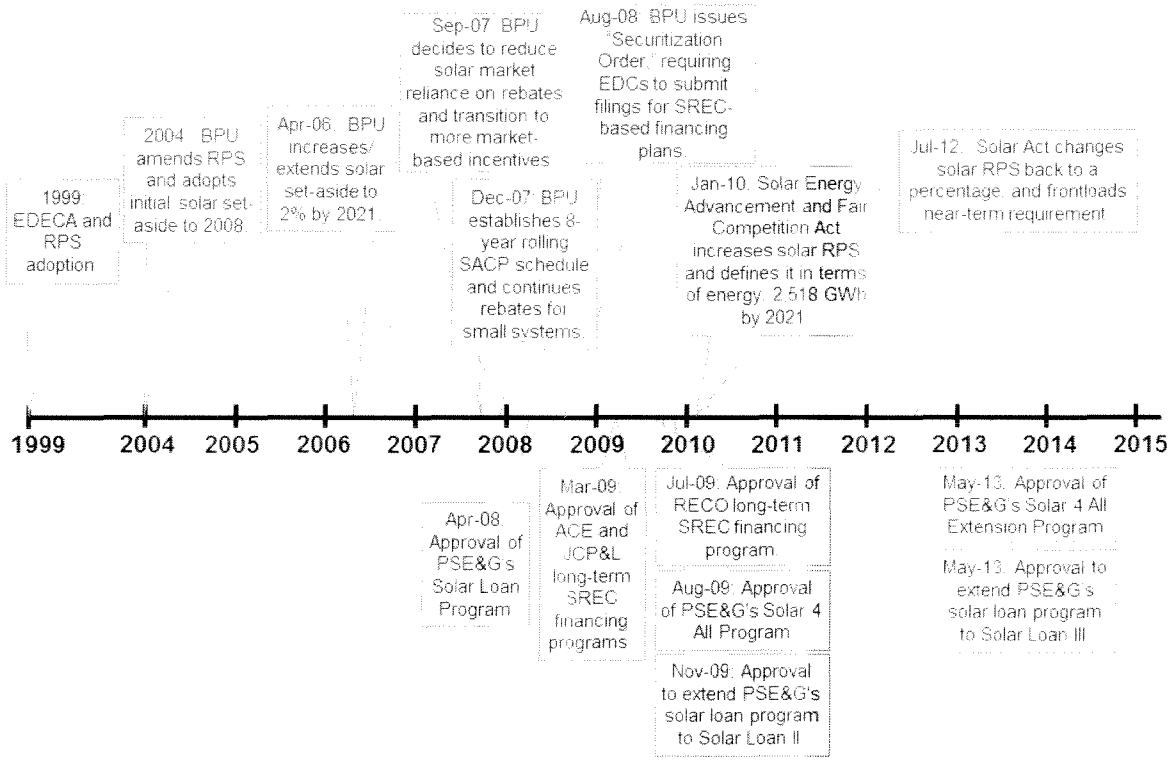
The second premise is that there is no need for any new level of financial, regulatory, and contractual support for the New Jersey solar industry. Current market data indicates that New Jersey's solar energy markets are attractive to both solar system purchasers and investors. There is no need to "double down" on a new set of solar policies, preferences, or set-asides designed to create a solar energy market solution "in search of a potential problem." The remaining sections elaborate on both of these premises.

2. Ratepayer Solar Commitments

New Jersey ratepayers have supported solar energy development since the Electric Discount and Energy Competition Act ("EDECA") in 1999 which required the BPU to establish a renewable portfolio standard ("RPS") for all future electricity sales in the state.[6] In 2004, the BPU expanded upon the EDECA's renewable energy commitment by introducing an explicit solar set-aside, which was one of the first of its kind in the United States.[7] Shortly thereafter, in 2006, the BPU increased the solar set-aside, requiring 2.1 percent of the state's electricity sales to come from solar energy by 2021.[8] Again, this was an ambitious endeavor, especially when compared to other states with commitments to renewable energy. New Jersey's policy commitments to solar energy, however, did not stop with defining a solar requirement. Over the next several years, the BPU, as well as the Assembly, continued to modify New Jersey's solar commitments in response to solar industry concerns about market conditions and the regulatory uncertainty that purportedly existed in the state's solar energy policies during this time. Figure 1 shows a timeline of solar policy commitments put upon ratepayers since the EDECA in 1999.

[6] L. 1999 c. 23, sec. 38(d).
[7] 35 N.J.R. 4445(a) and 36 N.J.R. 2053(b)
[8] 37 N.J.R. 3911(a) and 38 N.J.R. 2176(a)

Figure 1: Timeline of Solar Energy Policies and Ratepayer Obligations



In 2010, New Jersey enacted the Solar Energy Advancement and Fair Competition Act, and once again, increased New Jersey's solar energy set-aside.[9] The Act also changed the set-aside requirement from a percent of sales based approach, to a fixed level of solar generation. The rationale for this change was that percentage-based goals created too much uncertainty for solar developers and investors. The variability inherent in a percentage-based goal was thought to create a significant degree of market uncertainty that, if not removed, would result in solar installation shortfalls and increased solar energy costs that would have to be paid through higher solar alternative compliance payments ("SACP").

The 2010 change in the solar set-aside was an important shift in New Jersey energy policy as well as in the risk placed upon ratepayers for future solar energy purchases. The original percent-of-sales based methodology incorporated a degree of ratepayer fairness since it

[9] L. 2009, c. 289

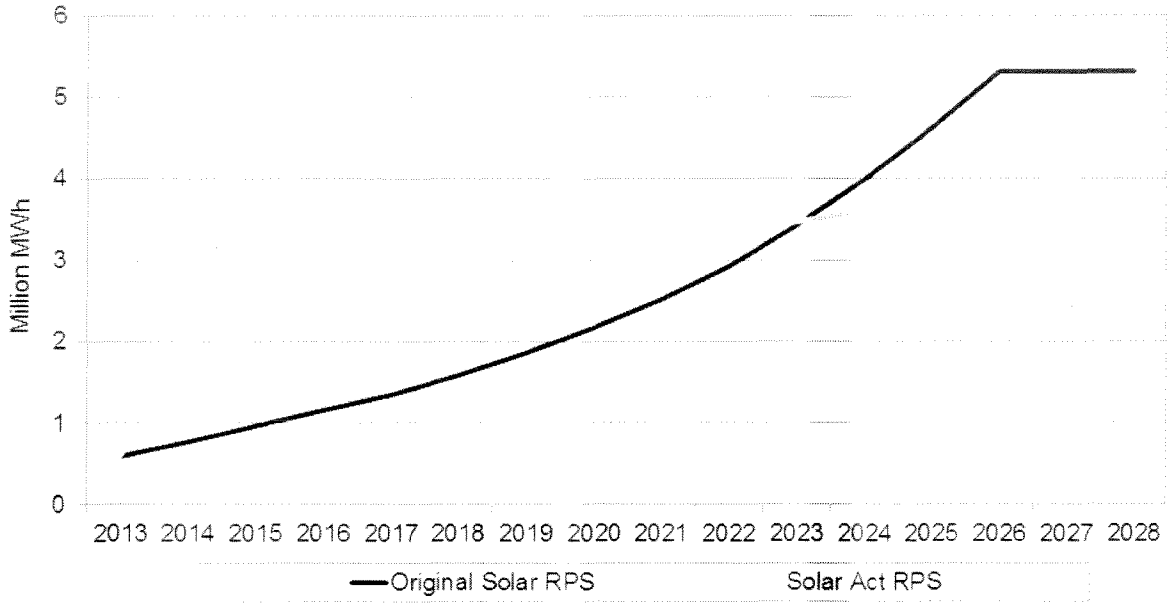
was tied to the growth of the market, under the premise that solar requirements would only grow as the scope of the market, and the ability to pay for increased solar energy, grew. The 2010 solar energy policy modification decoupled this relationship and required ratepayers to purchase above-market solar regardless of market scope or ability to pay.

Less than two years later, there was another significant change in the state's solar set-aside. The Solar Act of 2012[10] included provisions that shifted even more solar market development risk onto ratepayers. While the method under which the solar set-aside was determined was changed back to its original "percent of sales" based approach, the speed at which the solar RPS was to be implemented was increased significantly, accelerating the mandated percentages of solar energy that ratepayers would be required to purchase between 2014 and 2023.[11]

These increased solar requirement percentages, which are highlighted in Figure 2, were not trivial. The accelerated solar set-aside requirements for 2015 through 2019, increased by as much as one million megawatt-hours per year. For 2015, the accelerated solar set-aside **doubled** ratepayer solar obligations. Rate Counsel estimates that the escalation of the solar RPS has increased ratepayer costs to an estimated potential of $2.5 billion (net present value) in upfront costs that hopefully, will result in later term cost savings in the outlying years in which the solar energy requirement is reduced. This underscores the risk-shifting nature of this policy, since ratepayers are not guaranteed to receive savings in later years, whereas they almost certainly will have to pay significantly more than originally anticipated in the near term.

[10] L. 2012, c. 24.
[11] Id.

Figure 2: Accelerated Solar RPS Requirements (Solar Act of 2012)



In addition, the BPU has taken a number of policy actions, and approved a number of individual utility plans, designed to support solar energy development, all of which have been backstopped by ratepayers. In 2007, the BPU changed the method by which it supported solar energy development from one that emphasized solar installation rebates, funded through New Jersey's Clean Energy Plan (and Societal Benefit Charge funds), to one relying more heavily upon market forces and the use of solar renewable energy certificates (or "SRECs").[12] While this shift in policy appears to have been warranted, and has and will continue to have longer run benefits relative to the rebate-based status quo, it has not come without a cost. Reported SREC prices, for instance, leapt from a weighted average of about $230 per SREC in 2007-08 to as much as $500 per SREC in 2009, soon after the BPU's market-based solar policy initiative.[13]

[12] Docket EO06100744, Decision and Order dated December 6, 2007.
[13] New Jersey Clean Energy Program, SREC Pricing. Available at: http://www.njcleanenergy.com/srecpricing.

Between April 2008 and up until April 2013, the BPU approved a series of programs supported by the state's utilities, that have ostensibly been designed to use the utility's "patient capital" to facilitate longer-run solar energy investment, or solar investment in difficult to reach market segments. These programs include:

- a series of "solar loan programs" offered by Public Service Electric and Gas Company ("PSE&G"), designed to facilitate solar development through low-interest loans.
- PSE&G's "Solar 4 All" program, and a companion extension, designed to facilitate the development of solar in more difficult to reach market segments.
- A series of "long-term contracting" programs offered by Atlantic City Electric Company ("ACE"), Jersey Central Power & Light Company ("JCP&L"), and Rockland Electric Company ("RECO") that secures SREC purchases over 10-year periods to support longer term financial stability for project development.
- A series of programs and support mechanisms offered through the Clean Energy Program that, admittedly, have decreased substantially over the past few years.

The above discussion is not intended to be critical of the BPU's action or these programs. Rate Counsel has worked with the BPU and the utilities on many of the program design features. The discussion is offered to underscore that ratepayers have done their fair share in supporting solar energy on a programmatic and financial basis. Table 1 provides Rate Counsel's estimates of the cumulative cost of all of these programs, based upon the best available public information about these programs. On a summary basis these estimated ratepayer financial and contractual commitments include:

- The estimated cumulative payment of over $950 million (in 2014 dollars) in SRECs that have been included in ratepayers' basic electricity service rates.
- Over $360 million (2014 dollars) in estimated societal benefit charges ("SBC") that supported the Office of Clean Energy's ("OCE") solar installation rebate program.
- Another $480 million (2014 dollars) in estimated SBC payments has provided financial support for other OCE New Jersey Clean Energy Program ("NJCEP") renewable energy programs.

- An estimated $77 million (2014 dollars) in PSE&G's various solar loan programs that have been approved by the BPU over the past six years.

- An estimated $140 million (2014 dollars) in of PSE&G's "Solar 4 All" and "Solar 4 All Extension" programs.

- An estimated $111 million (2014 dollars) in the various long term solar energy contracting proposals approved by the BPU for ACE, JCP&L and RECO.

Table 1: Estimated Ratepayer Solar Energy Financial Support Costs

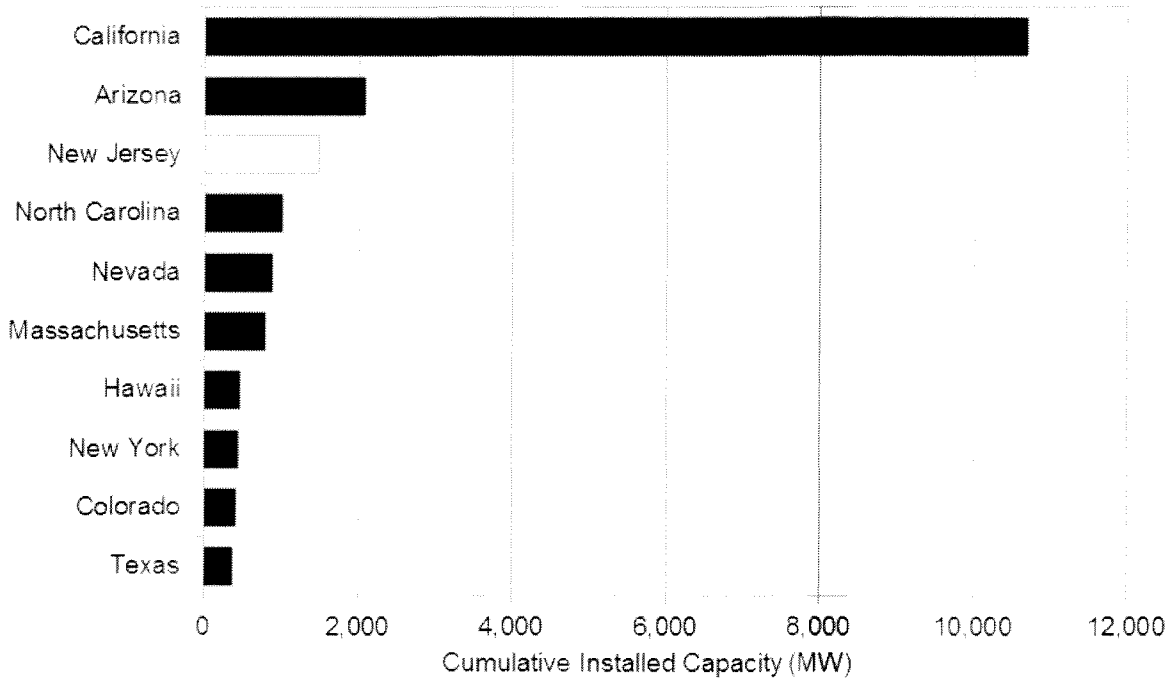
Energy Year	Solicitation Obligations and Ratepayer Expense											
							PSE&G					
	Solar RPS (SACP + SREC)	OCE CORE Program	Clean Energy RE Programs	ACE	JCP&L	RECO	Solar Loan I & II	Solar Loan III	Solar for All	Solar for All Ext	Total EDCs	Total
	(2014 $)											
2005	$ 1,766,115	$ 36,111,164	$ 42,975,771	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	$ 80,853,050
2006	2,765,807	97,140,437	98,967,626	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	198,873,870
2007	8,354,815	83,674,762	89,297,502	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	181,327,078
2008	18,630,330	56,722,387	62,597,272	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	137,949,989
2009	88,357,731	38,793,147	58,128,256	n.a.	n.a.	n.a.	$ 1,780,605	n.a.	$ 485,124	n.a.	$ 2,265,729	187,544,864
2010	118,311,517	30,969,979	67,674,435	$ 1,046,773	$ 5,901,029	$ 55,612	8,866,531	n.a.	10,467,548	n.a.	26,337,493	243,293,424
2011	194,317,268	13,828,934	41,006,766	5,616,703	14,558,019	714,003	14,499,775	n.a.	18,125,464	n.a.	53,513,965	302,666,932
2012	130,206,709	4,162,792	18,563,634	8,391,687	18,042,377	1,879,338	16,579,164	n.a.	38,888,178	n.a.	83,780,743	236,713,877
2013	108,465,510	-	-	8,270,543	17,781,914	1,852,208	16,339,824	$ 890,677	32,406,278	n.a.	77,541,445	186,006,955
2014	279,949,808	-	-	8,138,521	17,498,063	1,822,641	16,078,993	2,233,077	30,409,532	$ 8,899,474	85,080,301	365,030,109
Total	**$ 951,125,611**	**$ 361,403,601**	**$ 479,211,262**	**$ 31,464,227**	**$ 73,781,403**	**$ 6,323,802**	**$ 74,144,892**	**$ 3,123,754**	**$ 130,782,123**	**$ 8,899,474**	**$ 328,519,675**	**$ 2,120,260,149**

Source: OCE RPS Compliance History Report; OCE Program Report and estimates from utility program filings.

3. Market Need

Rate Counsel also believes that there is no economic or other market need for any new or additional solar policy initiatives. New Jersey has a robust and well-recognized solar energy market. In fact, as shown in Figure 3, New Jersey has the third highest level of capacity, on an absolute basis, relative to any other state in the United States following high solar resource states such as California and Arizona. It also has the highest solar energy capacity development of any state east of Rockies.

Figure 3: State Solar Capacity Development (2014)

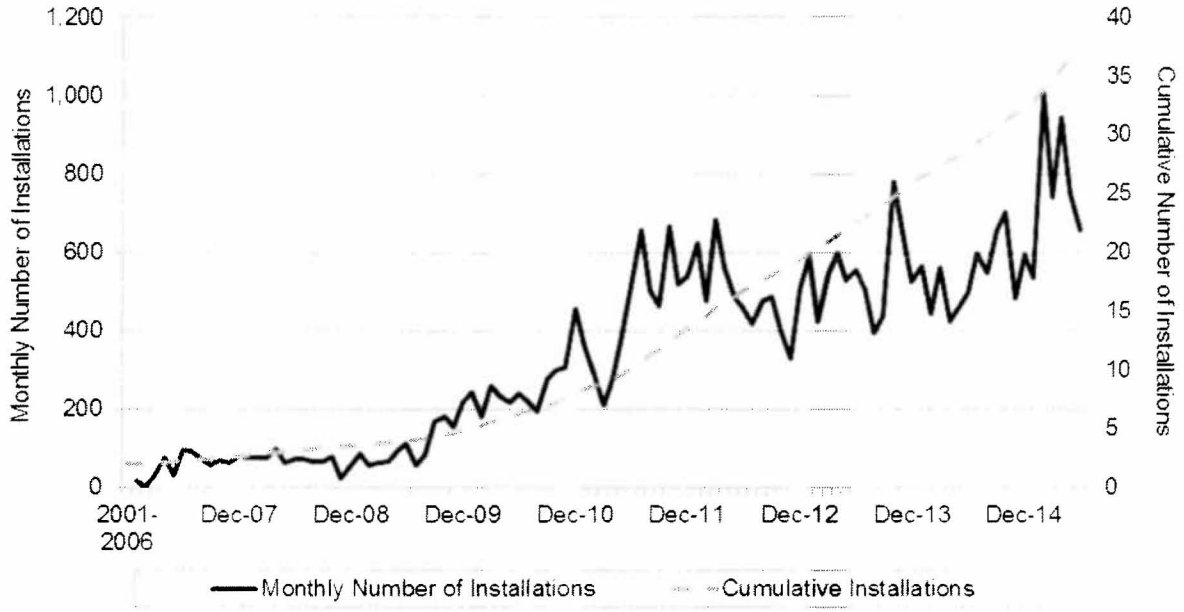


Source: Solar Energy Industries Association.

New Jersey's solar energy markets have grown considerably since the BPU's 2006 solar policy re-alignment. Figure 4 compares solar energy installations on both a monthly and cumulative basis. Over the past three years, New Jersey reports well over 500 solar installations

per month. Over 34,308 solar projects have been installed since 2007. Solar installations have increased at an average rate of four percent each month since the release of the last EMP in December 2011.

Figure 4: Monthly and Cumulative New Jersey Solar Installations

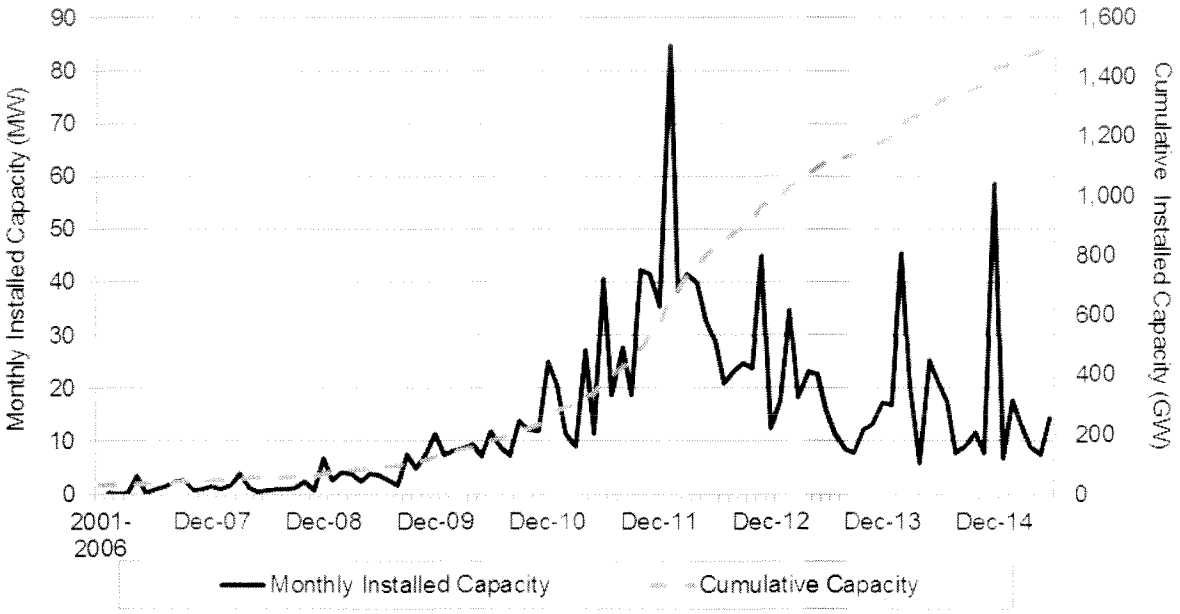


Source: NJCEP Solar Installations Report, June 30, 2015.

These trends are also reflected in the monthly and cumulative levels of solar capacity development.

Figure 5 provides the historic trend in New Jersey's solar capacity development showing that the market tends to support, on average, the installation of about 14.4 MWs of capacity each month. Cumulative solar energy capacity has grown from a level of about 565 MWs in December 2011, at the time of the last EMP, to a 2014 level of over 1,500 MWs: a capacity level comparable to 1.5 nuclear power plants.

Figure 5: Monthly and Cumulative New Jersey Solar Capacity

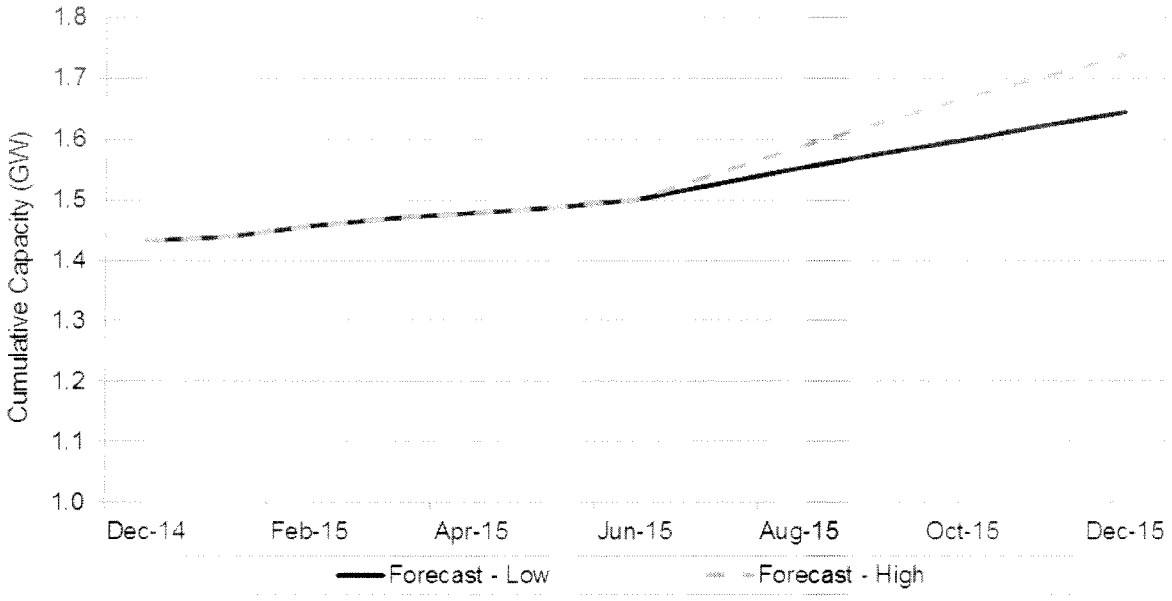


Source: NJCEP Solar Installations Report, June 30, 2015.

Further, as shown in Figure 6, these solar market trends are anticipated to continue into the future. Incremental installations were at an all-time high in February 2015, and have remained strong. These installation trends are more than sufficient for New Jersey to continue to meet future solar RPS requirements. In fact, OCE anticipates solar capacity to grow another 15 percent in just the next six months, an average monthly rate of 2.5 percent. The "high" OCE solar capacity forecast shown on Figure 6 anticipates a total of 1.74 gigawatts of solar energy capacity development by the end of 2015, a level that is 85 percent of the 2021 solar RPS requirement of about 2,000 megawatts.[14]

[14] This assumes a solar capacity factor of 18 percent and 2021 total retail sales of 82.8 million MWh.

Figure 6: Current OCE Solar Capacity Forecast (June 30, 2015)

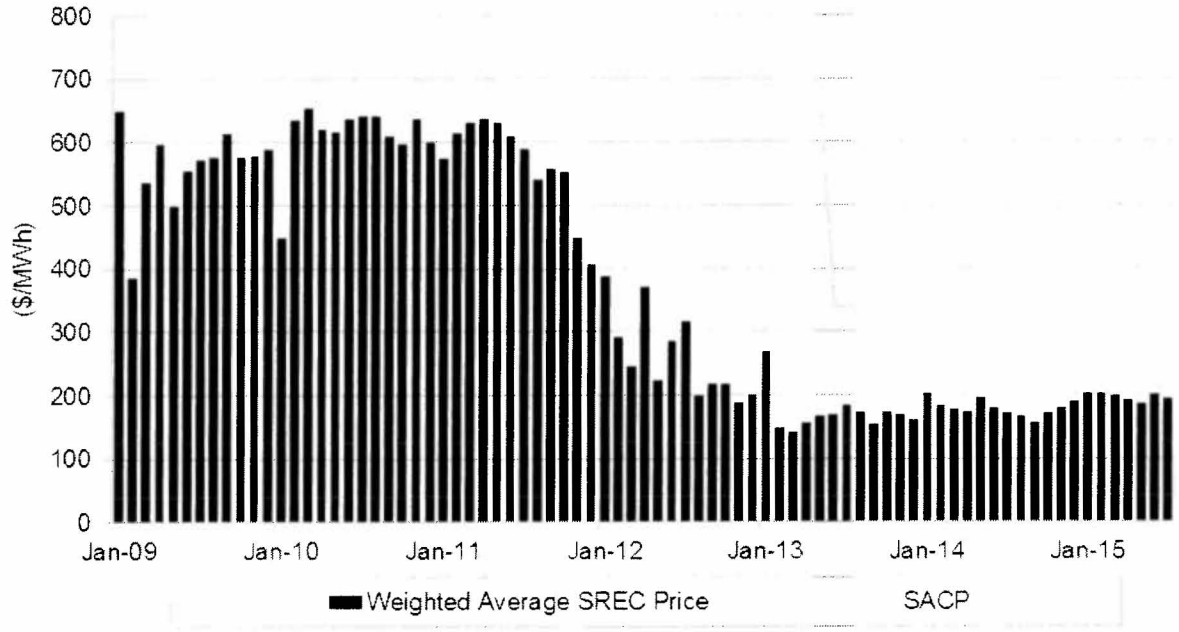


Source: NJCEP Solar Installations Report, June 30, 2015.

Ratepayer investments in solar energy are, fortunately, starting to pay dividends in the form of both lower SREC prices and lower solar installation costs. Lower SREC prices benefit the ratepayers that do not install solar equipment on their homes or businesses. Lower installation costs benefit those ratepayers making direct solar energy investments. Lower installation costs, in turn, help to reduce the level of financial support (i.e., SRECs) provided by non-solar installing ratepayers.

Figure 7 shows the considerable decrease in SREC prices since the 2011 EMP release. SREC prices, at that time, were hovering around $600 per SREC and were some of the highest in the mid-Atlantic region. Today, those prices have fall by over half and are at affordable levels comparable to those in other mid-Atlantic states.

Figure 7: New Jersey Weighted Average SREC Prices and SACP Prices



Source: PJM Gats

Contrary to some arguments, the substantial decrease in SREC prices does not establish a need for new solar initiatives. First, lower SREC prices are a reflection of the increased SREC supply created by an increase in New Jersey solar installations. The increase in solar installations, in turn, is the result of a considerable decrease in cost. The Department of Energy reports that system prices of residential commercial PV systems have declined six to seven percent per year, on average, from 1998 through 2013. Further, these costs fell 12 to 15 percent from 2012 to 2013 alone.[15] The Solar Energy Industries Association, the trade association for the solar energy industry, reports that in just one year (2014), installed costs for residential

[15] Feldman, David et. al. 2014. Photovoltaic System Pricing Trends. U.S. Department of Energy, National Renewable Energy Laboratory.

systems fell from $3.83 per watt to $3.48 per watt, or over nine percent, and notes that "significant opportunities to reduce costs remain."[16]

These significant solar energy cost decreases have made solar more affordable for average households and businesses. Increased solar affordability reduces the additional financial support that needs to be provided by non-participating ratepayers in order to stimulate solar energy development. This is exactly the type of outcome envisioned in the 2011 EMP and one that should continue to be recognized in the 2015 EMP Update. Lower SREC prices reflect a successful outcome in the solar industry, not a negative one in search of a new policy initiative or financial subsidy.

Lastly, the potential expiration of the federal solar tax credits at the end of 2016 should not serve as a cause to "double down" on new solar energy financial support programs. First, the federal solar energy tax credit could be continued. There are currently several proposals before Congress, and many others under discussion, to continue this credit, which has been in place since 2005. Further, even if the federal solar tax credit does expire, there is significant evidence that suggests that this will not lead to a collapse in New Jersey's solar energy markets. As an example, when the BPU discontinued its 50-percent solar energy rebate in 2008, solar installations did not retrench, and in fact, the re-organization of the state's solar markets at that time ultimately led to the expanded solar development seen today. While the BPU did adopt a number of policies in the aftermath of its solar market reorganization that helped facilitate later development (1) those initiatives were not implemented overnight; (2) many of those same policy initiatives are currently in place today and may mitigate any future market downturns; and (3) participation in the state's long-term solar contracting markets has waned considerably over

[16] Solar Energy Industries Association. 2014. Solar Market Insight Report Q4 2014. Available at: http://www.seia.org/research-resources/solar-market-insight-report-2014-q4.

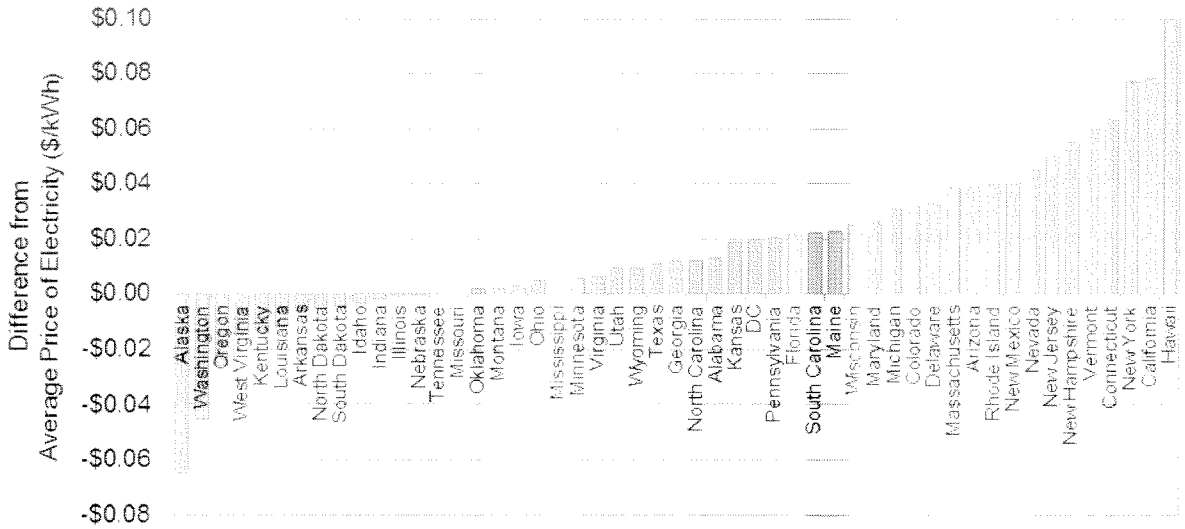
the past year indicating that the solar market is now less reliant on subsidies. Solar consumers and investors know today, as they did in 2008, that New Jersey has a considerable and stable solar market place that is robust enough to withstand known changes in federal solar energy tax policies.

A further stabilizing factor is that solar installation costs have fallen, and will continue to fall, relative to retail electricity rates. Quite simply, solar installation costs continue to decline while base electricity costs (i.e., ratepayer bills) continue to increase. This makes solar increasingly more competitive relative to grid-provided power. The competitiveness of solar to grid-provided power is anticipated to only improve as solar installation costs continue to decline. Market analysts expect solar system prices to continue to fall in the near future, between 14 and 25 percent by the end of 2016. A number of market analysts estimate that solar energy is already cost-competitive, or is at "grid-parity" with retail electricity rates, in at least 10 states.[17]

Figure 8 replicates a chart developed by Deutsche Bank that shows, by 2016, solar energy costs will be comparable with grid-provided power in 36 states, including New Jersey. This market outlook underscores the lack of need for further intervention. New Jersey can preserve the commitments already made, while allowing market forces to drive the next several years of solar development.

[17] Randall, Tom. 2014. While You Were Getting Worked Up Over Oil Prices, This Just Happened to Solar." Bloomberg. Available at: http://www.bloomberg.com/news/articles/2014-10-29/while-you-were-getting-worked-up-over-oil-prices-this-just-happened-to-solar.

Figure 8: Estimated 2016 Solar Energy Grid Parity Costs



Source: Randall, Tom. 2014. While You Were Getting Worked Up Over Oil Prices, This Just Happened to Solar." Bloomberg. Available at: http://www.bloomberg.com/news/articles/2014-10-29/while-you-were-getting-worked-up-over-oil-prices-this-just-happened-to-solar. The shaded bars show the anticipated cost of solar energy (assuming a conservative 20-year lifespan for the panels) minus average electricity prices. Positive numbers indicate the savings for every kilowatt hour of electricity.

4. Conclusions

As discussed above, since that time the State's electricity are among the highest in the Nation, and have risen considerable since 2005. It is not coincidental that this occurred while New Jersey was undertaking one of the most expansive solar energy experiments in the United States. While New Jersey's solar initiative are not the sole cause of the State's high electric prices, their impact has been significant. The upcoming 2015 EMP Update should take into account the need to reduce the energy costs of the households, business and industry to make New Jersey a more economic place to live and do business. The 2015 EMP Update should focus less on additional solar and renewable energy initiatives and more on making electricity affordable for all New Jersey households, businesses, and industries.

C. Promoting energy efficiency and conservation

1. Overall energy efficiency and conservation goals

Energy efficiency and conservation remain the least-cost ways to achieve reductions in carbon dioxide and other emissions. Rate Counsel favors continued support for energy efficiency and conservation initiatives.

A critical issue is whether the state is currently on track to meet the energy savings and peak demand reduction goals contained in the 2011 EMP. The Notice does not provide any data regarding historic or projected energy consumption, nor does it address the efforts that will be needed to achieve the levels required to meet the 2011 EMP goals. Rate Counsel has performed an analysis of the goals for reduced consumption of electric energy. Based on that analysis, it appears that the state needs to considerably ramp up its energy efficiency and conservation efforts to meet the 2011 EMP goals through 2020.

According to the American Council for an Energy Efficient Economy ("ACEEE") Energy Efficiency Scorecard, New Jersey achieved energy savings of only approximately 0.56 percent of retail sales in 2013.[18] Increased levels of energy efficiency savings should be achievable. According the ACEEE Scorecard, in 2013 twenty-five other states achieved higher energy efficiency savings as a percentage of retail sales.[19] New Jersey needs stronger, more effective energy efficiency and conservation programs to meet the 2011 EMP goas through 2020. The 2015 EMP Update should include specific plans and policies to achieve greater energy efficiency savings. Some suggested means of improving the State's programs are discussed below.

[18] ACEEE 2014 State Energy Efficiency Scorecard, Appendix B, available at http://aceee.org/research-report/u1408.
[19] Id.

2. Coordination with NJCEP programs

The 2011 EMP recommended a redesign of the delivery of state energy efficiency ("EE") programs.[20] The 2011 EMP recognized the value of the State's utilities in delivering energy efficiency and conservation programs, while it called for an evaluation of alternative EE program delivery structures that can "optimize the delivery of effective EE programs to a wide array of customers."[21] The OCE initiated a process to examine alternative EE program administrator structures in 2010 through 2011 and requested stakeholder comments. However, this process is taking much longer than anticipated. Rate Counsel is hopeful that a single program administrator will be retained soon, and that this will facilitate the process of streamlining and consolidating the OCE's and the utilities' programs.

As stated in previous Rate Counsel's comments to the BPU, the State may wish to consider a statewide Energy Efficiency Utility structure.[22] A statewide Energy Efficiency Utility structure would provide consistency across the state and establish a single point of contact for EE programs. A single entity could be could be held accountable for achieving defined goals.

If this option is not feasible for the state, it would be reasonable to allow the utilities to continue providing additional EE programs. However, the utility programs should have no redundancy with NJCEP offerings. Currently, some of the State's natural gas utilities offer incentives that supplement or substitute for the NJCEP offerings. Those utilities have not demonstrated the extent to which their program offerings lead to savings beyond the level that could be reasonably assumed to result from the NJCEP incentives alone, or that the total level of incentives is appropriate given the allocation of costs and benefits between the program

[20] 2011 EMP, p. 113.
[21] 2011 EMP, p. 119
[22] Comments of the New Jersey Division of Rate Counsel on Transitions Within the Clean Energy Program, BPu Dkt. No. EO07030203 (Dec. 3, 2010).

participants and the ratepayers who pay for the incentives. In addition to avoiding ovelap with NJCEP programs, the utilities' programs either 1) should be innovative, such as, for example by employing new methods for program delivery, by trying new approaches to overcoming barriers to energy efficiency, or by targeting unique market segments, or 2) should offer services that would be administratively or economically difficult for OCE to offer. By and large, the existing utility EE programs also do not meet the first criterion: most of the programs merely supplement existing NJCEP programs and thus are not innovative. Some utilities offer services that OCE cannot, such as on-bill financing, but most do not.

Rate Counsel has been working with OCE and the utilities to provide better analysis of the effectiveness of the utilities' programs, and assure that the utilities are collecting and reporting the necessary data to the necessary analyses. The most recent EE program approvals allowed the utilities to continue their existing program, but required them to collect more data, and to perform more evaluations, of the costs and benefits of their programs. Rate Counsel hopes that these measures, together with the streamlined administration of the OCE programs, will allow for more, and more effective, EE programs. Rate Counsel strongly recommends that the 2015 EMP Update endorse the ongoing efforts to improve data collection, reporting and analysis, and provide for more streamlined EE program delivery with more clearly articulated, prescribed roles for NJCEP and the utilities.

3. Low-income program issues

Rate Counsel also recommends that the 2015 EMP Update provide for more and better programs for low-income customers. EE measures are provided to low-income customers through the Comfort Partners program, which is managed by the State's electric distribution and natural gas utilities on behalf of OCE. A recent evaluation of the Comfort Partners program, conducted by Apprise in 2014, found that the program failed to achieve expected savings,

exhibited weaknesses in audit and installation procedures, and had a high rate of job inspection failures.[23] Apprise discovered many missed opportunities for installing the most cost-effective measures and concluded that "many of these missed opportunities would not result in greater expenditures, as they would require re-prioritizing or better quality work done" and that "in over 70 percent of the cases where there were missed opportunities, the contractors did not spend up to the seasonal guideline, and could have done a more thorough job."[24]

The 2015 EMP Update should provide for a re-evaluation of the State's methods for delivering EE measures to low-income customers. While low-income programs administered by any entity would face significant barriers to and high administrative costs of reaching and serving this population, it is important that the state take this opportunity to consider whether the current model is the most effective and beneficial one, or whether both low income customers and ratepayers in general might achieve more value from another arrangement.

4. Updated building codes and appliance standards

The 2011 EMP states that "[i]ncorporating aggressive EE requirements within the New Jersey Uniform Construction Code (NJUCC) will assist in reaching our goal of reducing energy use in both new and existing buildings."[25] However, New Jersey lags behind other states in updating both building codes and appliance standards.

New Jersey has not updated its residential and commercial building energy codes for almost five years, since September 2010.[26] Furthermore, as shown in Figures 11 and 12 below, 14 states have more stringent residential building codes, and 20 states and the District of Columbia have more stringent commercial building codes, than New Jersey's.

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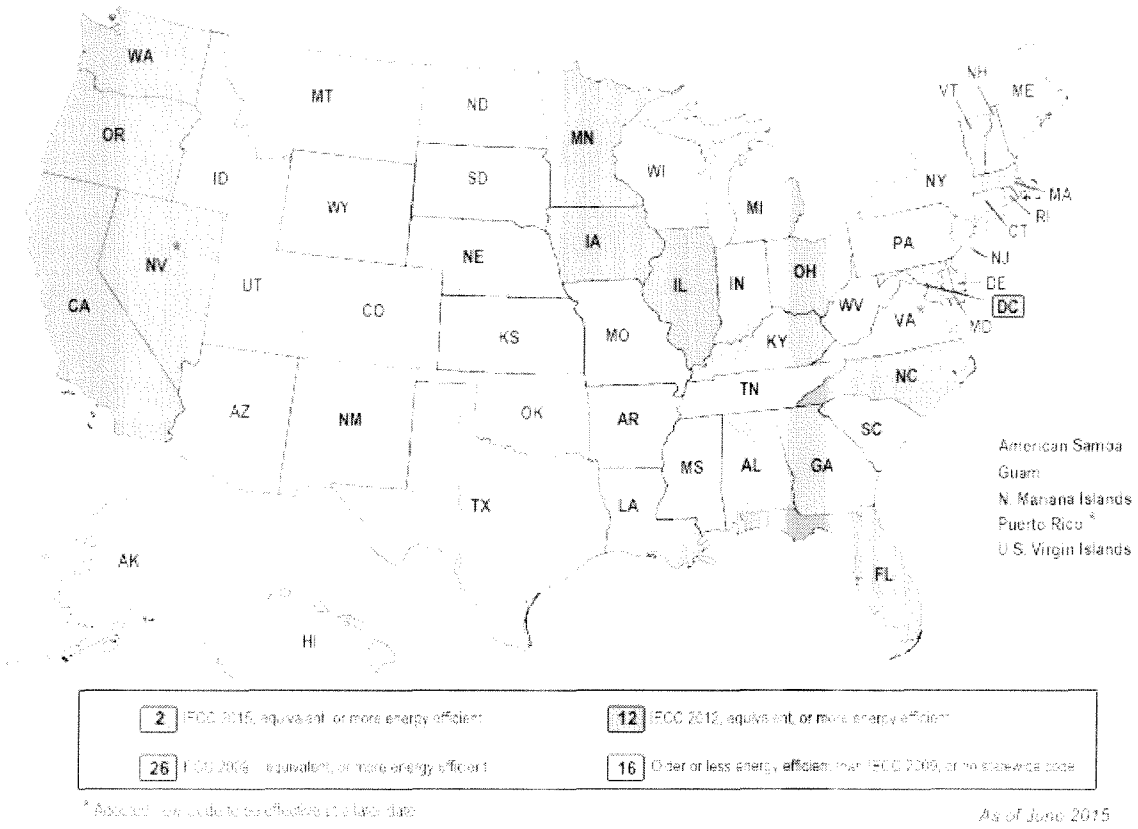
[23] Apprise, New Jersey Comfort Partners Final Evaluation Report , p. xv and viii (Dec. 2014), available at: http://njcleanenergy.com/files/file/Final%20NJ%20CP%20Evaluation%20Report%20(2).pdf

[24] Id., p. xv.

[25] 2011 EMP, p. 116 - 117)

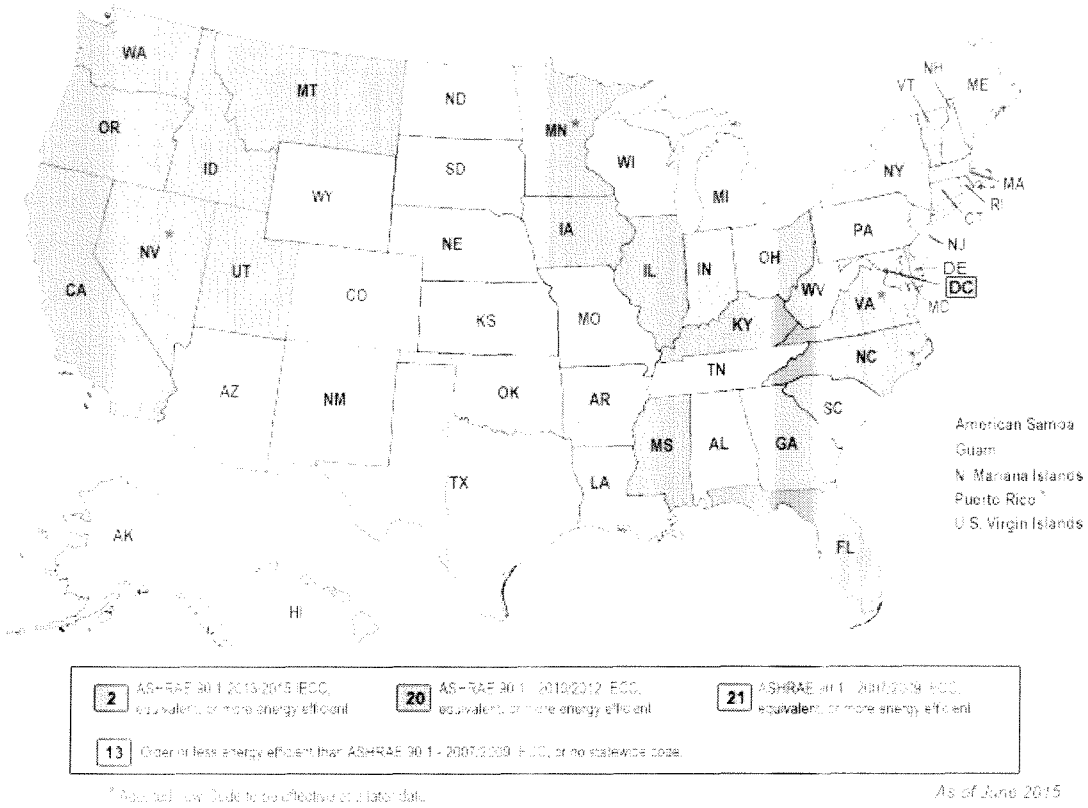
[26] https://www.energycodes.gov/adoption/states/new-jersey .

Figure 11. Current Residential Building Energy Code Adoption Status[27]



[27] https://www.energycodes.gov/status-state-energy-code-adoption

Figure 12. Current Commercial Building Energy Code Adoption Status[28]



Rate Counsel understands that proposals to update New Jersey's building codes are under discussion. Rate Counsel strongly supports this effort. A recent study by the United States Department of Energy found that "[e]nergy cost savings for New Jersey resulting from the state updating its commercial and residential building energy codes in accordance with federal law are significant, estimated to be on the order of nearly $195 million annually by 2030."[29] We recommend that the 2015 EMP Update encourage updates to the State's building codes as soon as possible both to support the attainment of the State's energy efficiency and conservation

[28] https://www.energycodes.gov/status-state-energy-code-adoption
[29] https://www.energycodes.gov/adoption/states/new-jersey

goals, and to assure that New Jersey's residents and businesses consumers gain additional economic benefits through substantial energy savings.

New Jersey also lags behind other states in updating its appliance standards. While some State appliance standards have been pre-empted by federal standards, there are still 19 appliance types regulated by energy efficiency standards in 11 states and the District of Columbia.[30] Connecticut, for example, has updated its state appliance standards four times over the past ten years. The Connecticut standards that are currently in effect are for bottle-type water dispensers, commercial hot food holding cabinets, hot tubs, swimming pool pumps, compact audio equipment, DVD players and recorders, and televisions.[31] New Jersey, by contrast, last adopted its own appliance standards in 2005, and those standards have since been superseded by federal standards.[32] The 2011 EMP states the Staff of the BPU and Department of Community Affairs will conduct annual reviews to determine whether the federal appliance standards are sufficient, or whether "State-specific actions will be necessary," and states that "the BPU will cooperate with the Legislature and consider adopting the higher standards as they become available, including the costs and benefits of such changes."[33] The 2015 EMP Update should provide for continued consideration of updated appliance standards.

5. Bidding energy efficiency into PJM capacity markets

Rate Counsel has repeatedly recommended that NJCEP offer its energy savings into PJM's capacity markets. This issue was considered by the BPU's Utility Work Group and the Data Work Group. The updated EMP should adopt the advice of the Data Work Group and mandate that OCE and the utilities bid their energy efficiency capacity into the PJM market.

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[30] National Association of Clean Air Agencies, Implementing EPA's Clean Power Plan: A Menu of Options, Ch. 14, p. 14-2 (May 2015) ("NACAA Report"); report available at http://www.4cleanair.org/NACAA_Menu_of_Options; Chapter 14 available at: http://www.4cleanair.org/sites/default/files/Documents/Chapter_14.pdf

[31] Id., Ch. 14, p. 14-8.

[32] http://database.aceee.org/state-appliance-standards-summary

[33] 2011 EMP, p. 118.

Furthermore, the 2015 EMP Update should call on the NJCEP program administrator and Staff to monitor any changes in PJM's rules to ensure that such participation is beneficial to ratepayers.

D. Supporting combined heat and power

The 2011 EMP states that "[t]he Christie Administration is committed to developing 1,500 MW of CHP generation over the next ten years: 1,400 MW of C&I applications and an additional 100 MW from district energy systems."[34] However, it has become clear that the current installation trend for CHP is far from meeting this CHP goal in 2020. The U.S. Department of Energy Combined Heat and Power Installation database shows that 58.7 MW of CHP capacity was installed in 2011, 2012, and 2013. [35] The BPU provides a database of CHP applications. In 2011, 2012, and 2013, applications totaled 23.5 MW, of which 5.12 MW are from C&I.[36] Reflecting these low installation rates, the latest Comprehensive Resource Analysis draft issued by OCE recommended a reduced level of funding for FY16 and a "stakeholder-driven process to review and redesign the CHP program, while considering related factors such as use groups, project economics, payment structures, interconnection, stand-by tariffs, resilience, etc."[37]

OCE's proposed recommendations are reasonable given the large difference between actual installed CHP capacity and the EMP's CHP goal. We also recommend that 2015 EMP Update take into account the above developments and consider adjusting its CHP target and providing for a process evaluation to identify areas for improvements.

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[34] 2011 EMP, p. 85.
[35] https://doe.icfwebservices.com/chpdb/
[36] http://www.njcleanenergy.com/commercial-industrial/programs/combined-heat-power/combined-heat-power
[37] Office of Clean Energy. 2015. Comprehensive Resource Analysis – Staff Straw Proposal New Jersey's Clean Energy Program Proposed Funding Levels FY 16. pp. 50, available at http://www.njcleanenergy.com/files/file/Staff%20Straw%20Proposal%20FY2016%20050415.pdf

III. Emerging Issues Since 2011

A. Protecting critical energy infrastructure.

During 2011 and 2012, New Jersey experienced three major storm events—Hurricane Irene on August 28, 2011, the October Snowstorm on October 29, 2011, and Superstorm Sandy on October 29, 2012. In the aftermath of these storm events, all New Jersey ratepayers are concerned about the state of energy utility infrastructure and the level of resiliency and hardening to withstand future weather events. Rate Counsel believes that reliable utility service is a basic necessity. Without these critical services, customers cannot live in their homes or operate their businesses. Rate Counsel agrees with the EMP goal of protecting critical energy infrastructure, especially in this modern age when everyone relies heavily on electric and gas services.

It is also important, however, that service be provided at reasonable rates. Ratepayers should not be required to pay for any project that is purported to improve a utility's system without sufficient proof that the spending is thoughtfully planned, cost effective, and assured to have real impact on the robustness of the utilities' systems and speed of service restoration after a major storm. The utilities also should not be relieved of their obligation to spend the money ratepayers already pay in rates to ensure reliability and safe, adequate and proper service, and they should not earn the premium return that comes with alternative rate mechanisms for capital projects that should have been done in the ordinary course of business. The 2015 EMP Update should recognize the need to assure that reliability improvements are accomplished with due regard for the utilities' obligation to provide service at reasonable rates.

B. Improving electric distribution Companies' emergency preparedness and response

Following Hurricane Irene, the October Snowstorm, and Superstorm Sandy the BPU has taken significant steps to investigate and improve the four regulated electric distribution companies' ("EDCs'") responses during severe weather. In December 2011, after Hurricane Irene, and the October Snowstorm, the BPU Ordered the EDCs to comply with the Staff recommendations that included immediate action by the EDCs to improve their communications.[38]

While a consultant's further review of the EDCs' storm preparedness was ongoing, Superstorm Sandy made landfall in New Jersey on October 29, 2012. On January 23, 2013, the BPU accepted the consultant's final report, which contained extensive recommendations touching upon 1) preparedness efforts by the EDCs, 2) communications with customers, government officials, and company personnel, 3) restoration response, and 4) posting of event reporting. The BPU Order included specific actions to be required to be undertaken by the EDCs as well as the timeline in which these actions were to be completed. [39] A subsequent Order, issued by the BPU on March 20, 2013, opened a generic proceeding to support and protect New Jersey utilities' infrastructure by, among other things, inviting all regulated utilities to submit detailed proposals for infrastructure upgrades designed to protect the State's utility infrastructure from future Major Storm Events.[40] Under the umbrella of the BPU's infrastructure resiliency and hardening initiatives, programs including PSE&G's $1 billion Energy Strong Program have been

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[38] I/M/O the Board's Review of the Utilities' Response to Hurricane Irene, Order Accepting Staff's Report and Requiring Electric Utilities to Implement Recommendations, BPU Dkt No. EO11090543 (Dec. 15, 2011).
[39] I/M/O the Board's Review of the Utilities' Response to Hurricane Irene, Order Accepting Consultant's Report and Additional Staff Recommendations and Requiring Electric Utilities to Implement Recommendations, BPU Dkt No. EO11090543 (Jan 23, 2013).
[40] I/M/O the Board's Establishing a Generic Proceeding to Review the Prudence of Costs Incurred by NJ Utility Companies in Response to Major Storm Events in 2011 and 2012, BPU Dkt. No. AX13030196 (March 20, 2013).

approved and are currently underway. The work is proceeding, but thankfully, since New Jersey has not experienced another statewide major storm, the extent to which the work has been successful is not yet known.

There has been one test of New Jersey's current level of resiliency, however. ACE and PSE&G were tested by the recent storm on June 23, 2015. ACE was the most affected by the June 23, 2015 storm, and both its preparedness and post-storm restoration were less than optimal. In particular, BPU Staff raised concerns regarding field and customer communications by utilities when telephone and wireless communications are affected by the same storm that affects the utility. BPU's press release on the utility response to the June 23, 2015 storm commented as follows:

> The electric utility sector's reliance on wireless communications is particularly critical in a weather impact outage that causes widespread infrastructure damage and requires a major mutual assistance response. For a period of at least 12 hours after the storm's impact, ACE was unable to use its field mobile data terminals for mobile dispatching of workforce and to communicate fluidly with its field crews and personnel. The utility needed to revert to radios and manual processes to dispatch crews and personnel; collect damage assessment information; and input data into its Outage Management System. This process caused inaccuracy in the outage information contained on ACE's outage webpages and maps. Additionally, mutual assistance crews were initially hampered by the wireless outage. [41]

This experience serves as an additional lesson as New Jersey continues its efforts to improve storm response. Utilities must keep regulators, as well as the customers and government officials, informed about the status of the storm impact and restoration. Communications with the field personnel who carry out service restoration are also crucial. For the future, the State must find a way to deal with the fact that both landline and often wireless communications may be unavailable after severe storms. This is an issue that requires the

[41] BPU June 23, 2015 press release entitled "N.J. Board of Public Utilities receives Preliminary Update on Staff's Review of Utility Company Responses to June 23rd Storm," available at: http://www.state.nj.us/bpu/newsroom/announcements/pdf/Macroburst_Storm_Prelim_20150723.pdf

attention not only of the State's energy utilities, but also the telecommunications and wireless industries. No matter how much electric and gas utilities invest in hardening their systems and deploying resources, if a reliable communication system does not exist then service restoration efforts will suffer. The 2015 EMP Update should include policies and plans to assure adequate communications following major storm events.

C. Increasing the use of microgrid technologies and distributed energy applications

Microgrid technologies and distributed energy applications could enhance reliability for the customers that use them, and provide energy savings by eliminating or reducing line losses. However, increased deployment of these technologies would raise some significant operational and cost recovery issues. Distributed energy applications may result in both lost sales and a need for investments to accommodate distributed generation facilities. A large microgrid serving multiple customers could have very significant operational and financial impacts, especially if the utility is required to serve as a backup source power supply.

In previously filed comments, Rate Counsel has emphasized the need to assure that the costs and benefits are fairly allocated between the users of distributed generation and a utility's other customers.[42] If the 2015 EMP Update includes consideration of microgrid technologies, it should provide for a careful examination of the costs and benefits.

Rate Counsel notes that there is already an ongoing federal initiative to investigate the feasibility of microgrid in New Jersey. The United States Department of Energy is currently partnering with NJ Transit and the BPU to develop a design for an advance microgrid system for

[42] E.g., I/M/O The Act Concerning the Imposition of Standby Charges Upon Distributed Generation Customers Pursuant to N.J.S.A. 48:2-21 et seq., BPU Docket No. GO12070600, Rate Counsel comments filed March 14, 2014.

NJ Transit.[43] The 2015 EMP Update could support this and other initiatives that do not rely on ratepayer funds.

D. Creating long-term financing for resiliency measures through the Energy Resilience Bank

The New Jersey Energy Resilience Bank ("ERB"), which is now administered by Economic Development Authority ("EDA"), developed program rules for an initial round of funding, in which $65 million will be made available to support resilience projects at water and wastewater treatment plants. It is Rate Counsel's understanding that no incentives have been awarded as yet. Rate Counsel also understands that a second round, to provide funds for resiliency projects at other types of facilities, is anticipated. Rate Counsel strongly supports utilizing the ERB money to the greatest extent possible because it reduces the additional amount ratepayers must pay for resiliency programs.

[43] USDOE Press Release dated Aug. 26, 2013, available at: https://energy.gov/articles/energy-department-partners-state-new-jersey-study-ways-improve-reliability-new-jersey-s

A PHI Company

Philip J. Passanante
Associate General Counsel

August 24, 2015

VIA ELECTRONIC MAIL

irene.asbury@bpu.state.nj.us
board.secretary@bpu.state.nj.us
EMPupdate@bpu.state.nj.us

Irene Kim Asbury, Esquire
Secretary of the Board
State of New Jersey
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
P.O. Box 350
Trenton, New Jersey 08625-0350

RE: Comments of Atlantic City Electric Company on Updates to 2011 Energy Master Plan

Dear Secretary Asbury:

On behalf of Atlantic City Electric Company ("ACE" or the "Company"), please accept these comments in connection with the New Jersey Board of Public Utilities' (the "Board") request for input on the update to the 2011 Energy Master Plan ("EMP") currently underway. The Company appreciates the opportunity to participate in this initiative and values the open and constructive way in which the Board has solicited public input. Please note that ACE, as a member of the New Jersey Utilities Association ("NJUA"), has already joined in comments that were filed by NJUA's President and Chief Executive Officer on August 13, 2015. The suggestions and policy recommendations offered in this letter are *in addition to* the comments reflected in that document.

As the Board reviews written comments and evaluates the input that was received at the EMP open public hearings on August 11, August 13, and August 17, 2015, ACE respectfully requests that the Board consider the following:

Smart Meters

The 2011 EMP states that "New Jersey should consider expanding the implementation of smart meters and gradually exposing customers with lower energy demands to real-time pricing in order to encourage wiser energy use and reduce retail prices for all residents."

A September 2014 study conducted by the Edison Foundation, Institute for Electric Innovation shows that New Jersey is the **only** state in the nation with **zero** electric smart meters installed as of July 2014. Looking purely at investor owned utility deployment (and thus excluding deployment by municipal and co-op entities), New Jersey is one of only eight states with no electric smart meter deployment. New Jersey stands last while more than 50 million smart meters have been deployed nationwide.

Smart meters and associated Advanced Metering Infrastructure (also referred to as AMI) offer a number of benefits to utility companies and their customers. These include:

- the availability of interval usage data online and via a mobile application provides customers the ability to learn about usage (e.g., when and how much is being used) and empowers customers to conserve energy;
- integration with outage management systems provides better situational awareness and dispatch optimizations as well as distribution management systems to provide enhanced outage management and distribution system monitoring;
- the transmittal of "Last Gasp" and "Power Up" messages from meter to the utility during outages and restoration activities, as well as the ability to "ping" meters to help determine whether a customer has electric service, which allows for more efficient restoration of power outages during both major outage events and on blue sky days;
- the foundational technology, which with more granular data, enables better integration of new resources, such as distributed generation, smart streetlight controls, electric vehicles, storage, and microgrids;
- savings associated with reduced truck rolls, automated meter reading, reduced theft of service, remote connect and disconnect of meters, and fewer estimated bills;
- deployment of new customer services, such as automated budget assistance and bill management, energy use notifications, and smart pricing and demand response; and
- pricing programs to promote more efficient use of grid controlled devices and energy efficiency, such as electric vehicles and microgrids.

The utility affiliates of ACE[1] have deployed 1.4 million electric smart meters in three jurisdictions: Delaware, Maryland, and the District of Columbia. Through continuous improvements and incorporating lessons learned from these deployments, PHI has refined the deployment process and is able to maximize the resulting benefits. PHI would be pleased to furnish additional details regarding customer benefits and operational efficiencies achieved in these jurisdictions in support of the Board's evaluation of its smart meter policy.

The Company strongly encourages strengthening of the Smart Metering language presently in the EMP. We recommend replacing the existing language regarding smart meters with "New Jersey should support the deployment of smart meters and associated cost recovery for utilities in order to encourage wiser energy use and reduce retail prices for all residents."

Microgrids

While ACE agrees with NJUA's comments that "the EMP should provide, as current law requires, that utilities continue to own and operate this infrastructure." the Company also notes the importance of the utility to act as the sole organization to manage the microgrid, controlling both the generation and load being supplied by the microgrid. The balancing of load and generation is a significant challenge that requires continuous attention. In order to gain economic and reliability efficiencies, integration of this generation into the overall grid design and operation should be continuously required not only during the limited times when a system event or load restriction require the operation of distributed generation. The utility has the modeling and forecasting capabilities to enable integration of microgrid resources and perform the continuous load balancing necessary to maintain reliability. These capabilities also help the utility identify possible efficiencies available to the distribution system by evaluating system expansion needs, taking into consideration both load growth and location of distributed generation. This better allows the utility to determine the most cost effective fit to increase reliability for critical loads, support the macro-grid, and meet future load growth economically.

ACE appreciates the opportunity to work with the Board and other interested parties to help shape an updated EMP that thoughtfully considers ever-evolving technological developments in utility operations and reflects the economic realities faced by the utility community and its customers. We thank you for your consideration and are available to share our input and experience.

Respectfully submitted,

/jpr

Philip J. Passanante
An Attorney at Law of the
State of New Jersey

[1] ACE is a subsidiary of Pepco Holdings, Inc. ("PHI") which is also the parent company of Potomac Electric Power Company operating in Maryland and the District of Columbia and of Delmarva Power & Light Company operating in Maryland and Delaware.

From: New Jersey League of Conservation Voters <information@njlcv.org> on behalf of Nan Rushton <feedback@lcv.org>
Sent: Monday, August 24, 2015 11:24 AM
To: EMPupdate
Subject: Energy Master Plan comment

Aug 24, 2015

Board of Public Utilities Secretary
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

Dear Secretary,

As a New Jersey resident, I'm writing to ask you to update the Energy Master Plan with much more focus and investment in clean energy and achieving greater energy efficiency, and less dependence on natural gas.

Our state should not invest in building natural gas pipelines that are cutting through communities and some of our most sensitive ecological parts of our state, and that will be obsolete in 50 years. If we move towards energy efficiency measures and developing renewable energy sources, we can greatly reduce our reliance on energy from fossil fuels and protect land, water, and air at the same time!

Sincerely,

Nan Rushton

Audubon, NJ 08106-1434

From: Chris Connor
Sent: Monday, August 24, 2015 1:14 PM
To: EMPupdate
Cc: William Kaufman
Subject: Energy Master Plan Update comment

August 24, 2015

Irene Kim Asbury
Secretary of the Board
New Jersey Board of Public Utilities

Irene,

An issue that the BPU needs to address in the updated Master Plan is valuing the positive impact of clean energy on New Jersey electric utilities. A number of studies have been done that established the positive benefits of solar (see below/attached for a recent example). The studies normally focus on the regional or state-wide impacts. It has seemed to me for some time that it should be more focused to the needs of individual electric utilities. One way to have solar installed in the right places is to give the distribution company the ability to provide economic incentives that will drive solar development to the locations most needed by them.

The process, in concept, is simple. Evaluate the network and identify areas that would benefit the most from installation of renewable energy, quantify the power needed, the economic benefit and then develop a program that shares that benefit with the solar installation company. This would give the utility company to place the needed amount of power at the right place and right time.

If such a policy and process was adopted by the BPU electric utilities would benefit, solar companies would benefit, rate payers would benefit and, in addition,New Jersey jobs would be created.

Thank you for your consideration.

Chris Connor

Director, Business Development
WATTL TS llc

www.wattlots

Sample Solar Valuation

25 Year Levelized Value	[illegible] Value ([illegible]) ×	[illegible] Factor (%) × (1+	Loss Savings Factor (%)) =	[illegible] ([illegible])
Avoided Fuel Cost	$0.061		8%	$0.066
Avoided Plant O&M - Fixed	$0.003	40%	9%	$0.001
Avoided Plant O&M - Variable	$0.001		8%	$0.001
Avoided Gen Capacity Cost	$0.048	40%	9%	$0.021
Avoided Reserve Capacity Cost	$0.007	40%	9%	$0.003
Avoided Trans. Capacity Cost	$0.018	40%	9%	$0.008
Avoided Dist. Capacity Cost	$0.008	30%	5%	$0.003
Avoided Environmental Cost	$0.029		8%	$0.031
Avoided Voltage Control Cost				
Solar Integration Cost				
				$0.135

Source: Pace Energy and Climate Cente, Rábago Valuing Clean Enerrgy 2/18/15

From:
Sent: Monday, August 24, 2015 1:22 PM
To: EMPupdate
Cc:
Subject: George Hay Comments on NJ BPU 2015 Energy Master Plan Update of 2011EMP
Attachments: NJ BPUFinal2015Comments2011EMPAugust20.doc

NJ BPU Secretary

Attached are my ratepayer perspectives as a South Jersey Gas and Atlantic City Electric customer comments/recommendations to the NJ BPU 2015 Energy Master Plan Update. I apologize about the length (and typos), but the plan really needed an in depth review and comment. I copied comments below in case the attachment doesn't come through.

George Hay
Somers Point

Comments and Recommendations - NJ BPU 2015 Update of 2011 EMP

Somers Point, NJ 08226

Summary: The 2011 EMP needs major revisions because of major flawed assumptions and is a bad deal for the ratepayers. It has inappropriately been used to justify illegal actions including violation of Pinelands Act and NJ Greenhouse Gas legislation and risks future stranded assets and electric reliability with ratepayer dollars. A major flawed assumption is that if existing peaking fossil steam units in NJ are retired, that over 2000 MW of new gas fired generation are needed avoid $1.8 billion of NJ electric grid upgrades (that appear to be happening anyway). This need likely has been addressed PJM recently announced $3.8 billion capacity auction which will likely extended the life of old peaking and encourage lower costs peaking and distributed options for reliability, instead of large combined cycles requiring major new pipelines and causing dramatic increases in NJ total levels of greenhouse gases. A moratorium should be placed on all rate payer funding for proposed NJ new gas pipelines, electric transmission lines related gas fired power plants (particularly BL England) until an objective independent integrated resource planning study is conducted. Study should be on reliability and electric resource needs in NJ, that considers distributed, efficiency and peaking resources as lower cost capacity resources to ratepayers then 2011 EMP advocates incorrectly. Restoring Clean Energy Funding, funding for efficiency/CHP, 2008 renewable portfolio 30% by 2021, funding

for offshore wind demonstration are all critical to support "rebalancing the portfolio" that is weighted towards "fracked" gas power projects and pipelines.

Background: I thank the NJ BPU for hosting the public hearings and opportunity to comment. I hope public input will be seriously considered. The public should be involved in reviewing the final draft of the update. I am a South Jersey electric and gas ratepayer, and experienced hurricane Sandy in Ocean City (on the Utility Advisory Commission 2009-2011). My house in Somers Point directly impacted by rising sea levels on my high FEMA flood insurance. I have an MBA and a Masters of Energy Resources. I am semi-retired after a career in electric & gas utility resource planning, analysis of resource options, management of clean energy RD&D programs, incubation of technology businesses and consulting/major DOE, EPRI and GRI clean energy planning workshops in CA, nationally and internationally.

In the early 1990's prior to electric deregulation in CA, I worked for a major California utility on a 20 year "Clean Energy Plan" similar to the NJ 2011 EMP. A goal was 50% greenhouse gas reduction by replacing 20,000 MW fleet of old gas fired steam units similar to those being replaced in NJ. The plan was based on system integration economies of scope synergies between renewable energy, advanced gas turbines, energy storage and distribution resources.

The costs of strategic planning mistakes are high in the electric industry. That clean energy plan was not implemented by the utility, and a decision made for a $26 billion stranded asset deregulation and settlement of past planning mistakes, and to let the market take care of planning. The cost of "getting the deregulation plan wrong" was the California electricity crisis and $100+billion range economic, ratepayer, taxpayer and stockholder impacts. The utility went bankrupt, as did major a gas company (ENRON) who bought some of the power plants and manipulated Ca strongly linked and dynamic "real time" electric and gas markets.

General Comments & Recommendations: I reviewed the 2011 EMP, spoke at the Stockton hearing, and make more extensive comments below on major goals and sub-goals.

1) The 2011 EMP appears seriously out of date, with mutipled-flawed technical, economic, environmental and market assumptions to could have major impacts increasing rate-payer bills and decreasing reliability of service. Major events, Federal policy changes, and technology and market changes have occurred since 2011 that need major revisions.
2) The most glaring assumption flaw in EMP is claim of $1.8 billion transmission upgrades needed if existing fossil steam peaking plants are retired as EMP justification for close to 2000 MW of new gas fired combined cycles and associated new gas pipelines and power plants in NJ. The high capacity factors of new gas power plants will dramatically increase NJ annual levels of greenhouse gases even if older peaking plants are retired (which new incentives will make less likely). Impacts will be higher if life cycle impacts of "PA fracked gas" considered.
   a) First, lower cost energy efficiency and distributed NJ generation exist as alternatives to the $1.8 billion electric transmission upgrades which were not

addressed in PJM report or NJ BPU. In some cases, electric utilities appear to be making these reliability upgrades anyway under the assumption of retirements.

b) Second, old steam plant retirements seem to not be directly tied to existing plant retirements. The flexibility of the existing fossil steam plants for peaking and reliability in NJ has been previously undervalued by PJM. This has significantly changed given announcement of $3.8 billion capacity payment auction. This will likely significantly extend the life of existing steam plants as peakers, that can use existing gas infrastructure that could adequate serve peaking plants, with onsite gas storage if needed (e.g., compressed gas or LNG storage). Thus the 2011 EMP justification of the nearly 2000 MW of new combined cycles in 3 projects (Hess Newark 625MW, Competitive Power Woodbridge 633MW, West Deptford 738MW, not including possible others and new CHP) does not address electric reliability or any public need. BL England 450 MW proposal was added after 2011 EMP.

New Jersey Board of Public Utilities
Energy Master Plan Update
Silver Spring Networks Comments

August 24, 2015

Silver Spring Networks would like to thank the New Jersey Board of Public Utilities for the opportunity to comment on the plans to update New Jersey's Energy Master Plan (EMP). Below we will provide examples of how a single, multi-application network platform, deployed to the edge of the distribution grid enables utility and customer benefits.

Introduction

Silver Spring Networks is a leader in smart grid networks and currently has networked more than 21.5 million homes and businesses. Silver Spring's Smart Grid solution is an open, standards based platform that has been proven to drive benefits from Advanced Metering Infrastructure (AMI) and additional solutions such as Distribution Automation (DA), Conservation Voltage Reduction (CVR), Demand Response (DR), Water and Gas AMI, and Streetlights over a single, unified network platform. Silver Spring also offers a data platform that is fully integrated with our network solution enabling advanced analytics solutions such as a Customer Energy Portal and Non-Technical Loss (NTL) detection. These solutions not only lead to operational savings, but additionally have been shown to improve reliability, increase customer satisfaction, provide options for customers to save energy and create new ways for the utility to engage with customers. Underpinning these benefits is Silver Spring's superior network performance, including high success rates for system availability and read rates that enable utilities to avoid costs and capture more benefits. Our performance allows for fewer manual reads, more successful remote switching, more effective outage detection, more timely and reliable voltage reporting (e.g., for CVR), more peak load reduction (e.g., for Demand Response) and other similar benefits. Additionally, a multi-application approach helps integrate existing organizational silos, and minimizes duplicative costs in network hardware, on-going maintenance, training, and back-office software and labor. Finally, as more endpoints are added to the mesh network, the network's performance and resilience improves.

Our business model is based on integrating the broadest possible array of devices and applications into a common networking and data platform to maximize flexibility and value for our customers over time. To that end, Silver Spring offers the largest and broadest partner ecosystem in the industry with over 125 partners, including all major US meter vendors commercially delivered in the field at scale. In addition to providing commercial leverage, this diversity is incredibly valuable in providing risk mitigation against supply or other delivery related issues.

Lastly, Silver Spring is the only network provider that has several clients using a converged IPv6 network for multiple smart grid applications at scale. This ensures that utilities don't have to invest in 'science projects' risking delays and budget over runs.

Proven Benefits

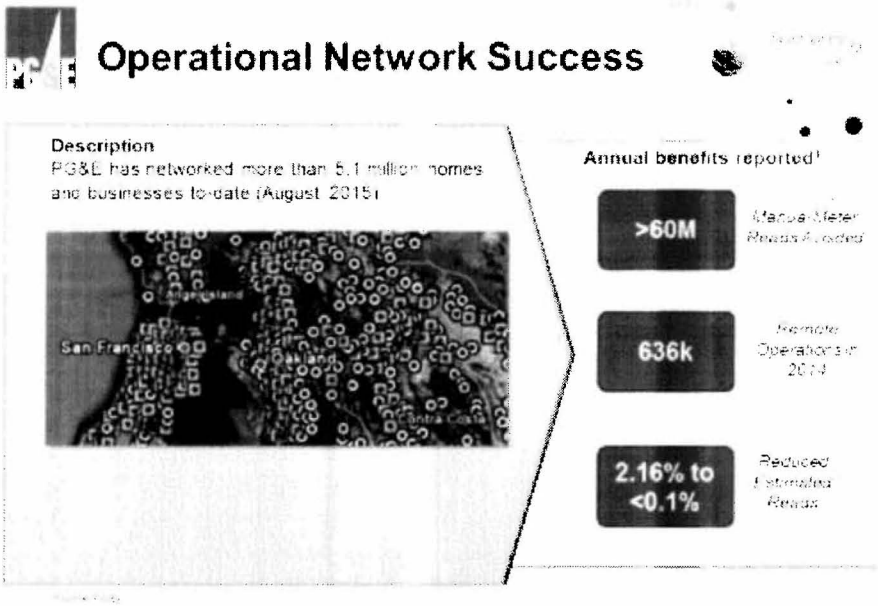
SSN technology has enabled our customer base to realize benefits across a wide range of areas such as:

- Operational Savings
- Remote Service Switch

- Enhancing Customer Options
- Outage Management
- Resiliency/Natural Disaster Response
- Enhanced Reliability
- Renewables Integration
- Demand Response
- CVR or Volt/VAR Control
- Streetlights

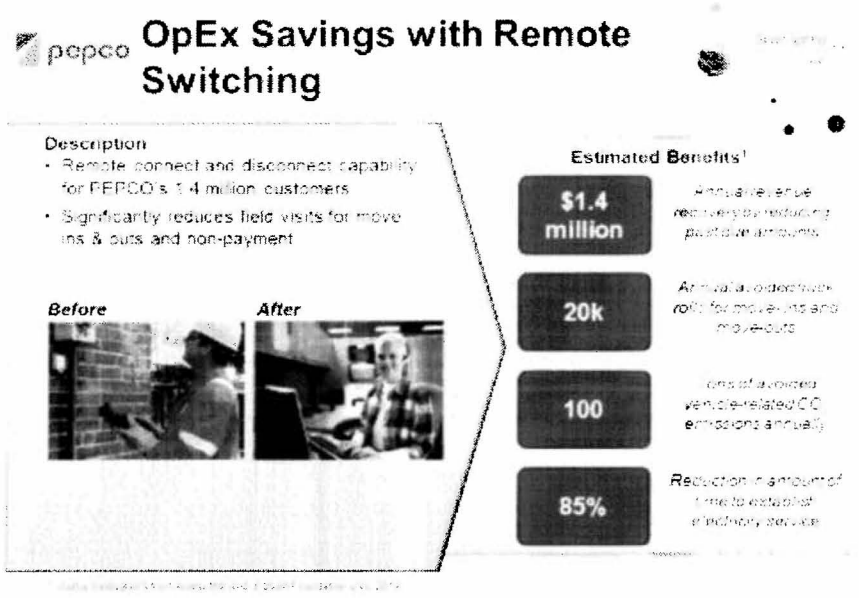
Below are examples of utilities who have realized tangible benefits through the deployment of Silver Spring's technology platform.

Operational Savings: Automated, two-way meter reading significantly reduces manual and one-off reading. For example, due to excellent meter read performance, Pacific Gas & Electric is able to avoid over 60 million manual meter reads annually. Additionally, estimated manual reads were reduced from 2.16% to below 0.1%. In 2014 alone, PG&E performed 636K remote operations saving millions of dollars through avoided truck rolls. A proven, reliable read rate performance across varying topologies and conditions is fundamental to ensure these operational savings.

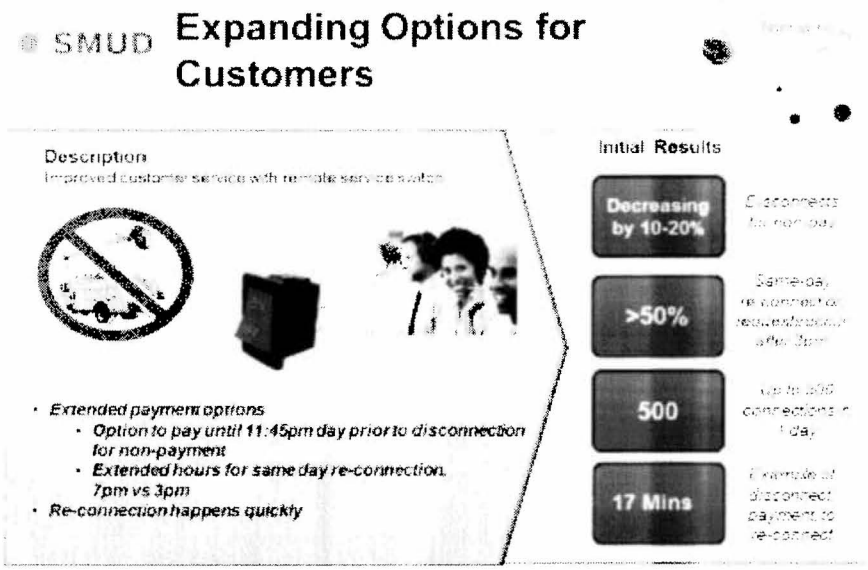


Remote Service Switch: Remote Service Switches which are often included in an AMI deployment can offer a specific set of savings. The success of any remote switch service implementation depends on impeccable network performance to ensure connection and disconnection commands are executed quickly and successfully. In the example above, PG&E's avoided truck rolls alone led to an estimated $54M operational cost reduction in 2014; additional benefits from reduced Bad Debt, Consumption on Inactive Meters, and administrative work for back-billing, etc. all generated incremental savings. Additionally, PEPCO has remote connect and disconnect capability installed at 1.4M customers. As a

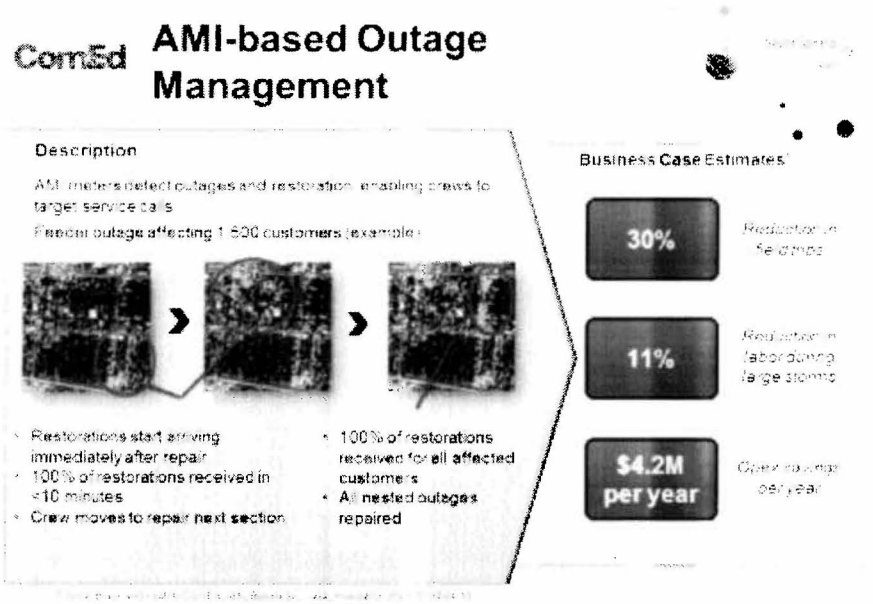
result, they have increased annual revenue recovery by $1.4 million by reducing past due amounts and annually avoids around 20k truck rolls for move-ins and move-outs resulting in 100 Tons of avoided vehicle-related CO2 emissions. PEPCO also decreased the time to establish electricity service by 85%.



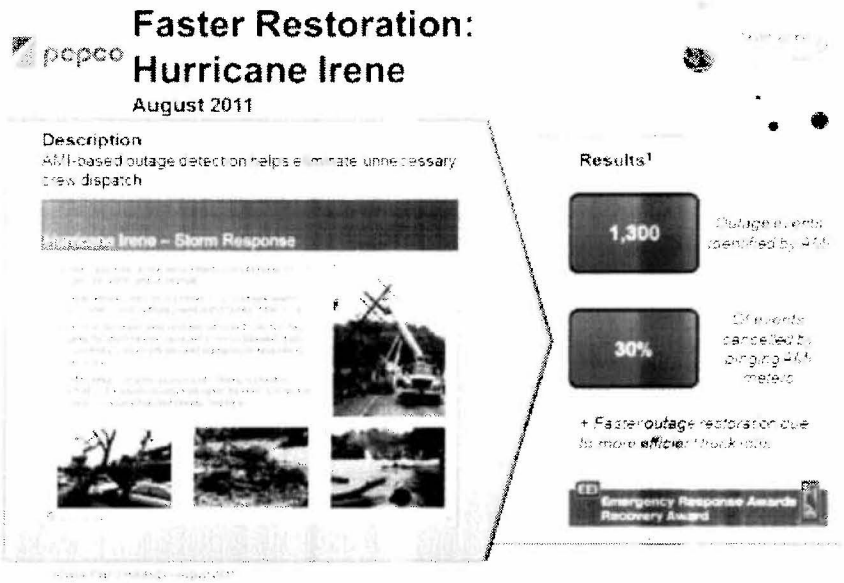
Enhancing Customer Options: AMI also allows utilities not only to reduce costs but also to offer their customers more options and enhance customer service. Sacramento Municipal Utilities District (SMUD) has been able to offer extended payment options, perform more same-day reconnections, and reduce the time needed to reconnect service to minutes as stated below.



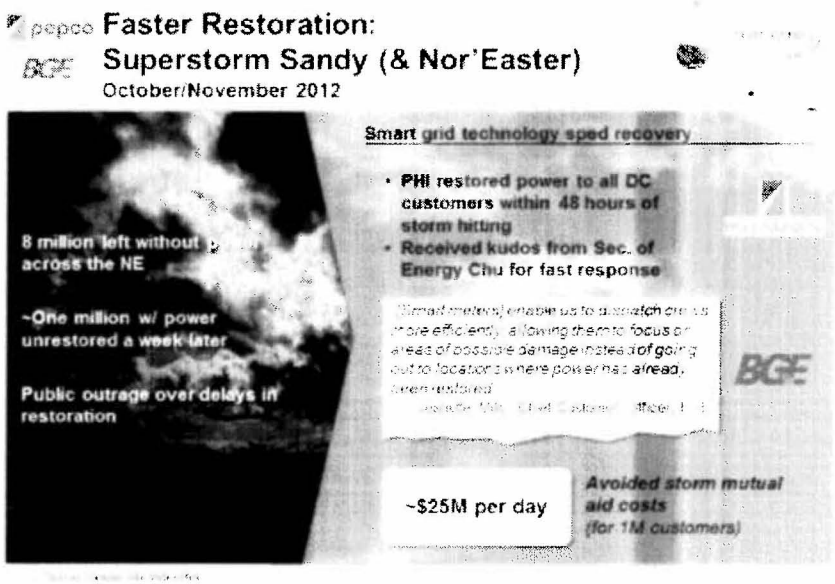
Outage Management: With broad deployment of AMI, utilities are able to detect outages (including nested outages) more rapidly and check meter status remotely in order to prevent unnecessary crew dispatches. This not only helps restore service more quickly, but also reduces field crew overtime costs. Commonwealth Edison estimated that it will see a 30% reduction in field labor as a result of AMI-based outage detection.



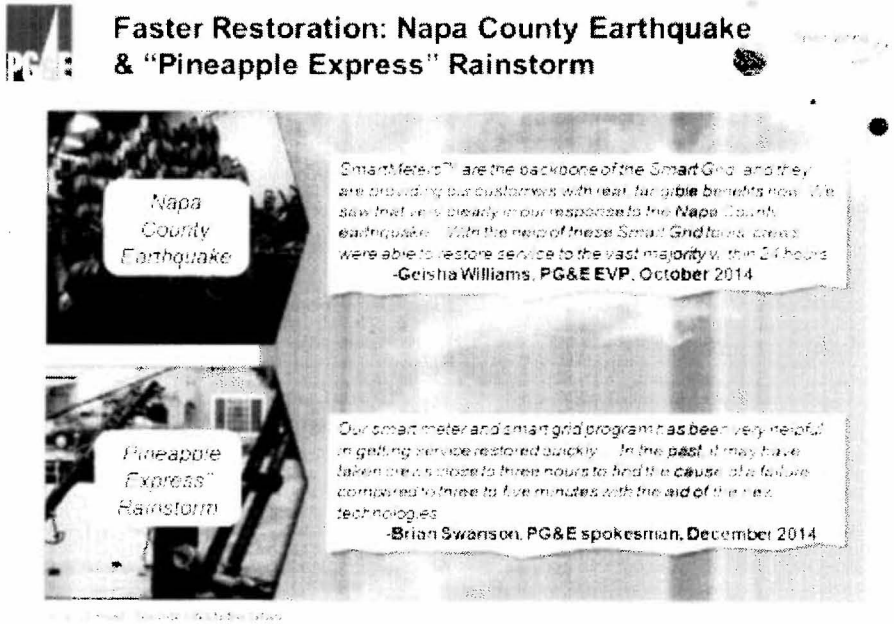
Resiliency/Natural Disaster Response: AMI networks have proven especially useful during and in the aftermath of extreme weather events in reducing restoration time and storm mutual aid costs, which are infrequent, but expensive. During hurricane Irene, up to 25% of Pepco's customers were without power. Pepco restored service to 98% of customers in just over two days and received positive comments from customers, elected officials and regulators on restoration responses. AMI outage detection eliminated the need to dispatch crews to several hundred outage locations. Additionally, restorations were sped up through more efficient truck rolls.



Further, during superstorm Sandy & the Nor'Easter, 8 million people were left without power across New England. One million were unrestored a week later leading to a public outrage over delays in restoration. In contrast, PEPCO restored power to all DC customers within 48 hours. Additionally, BGE's AMI system enabled crews to more efficiently dispatch, allowing them to focus on areas of possible damage instead of going out to locations where power had already been restored.

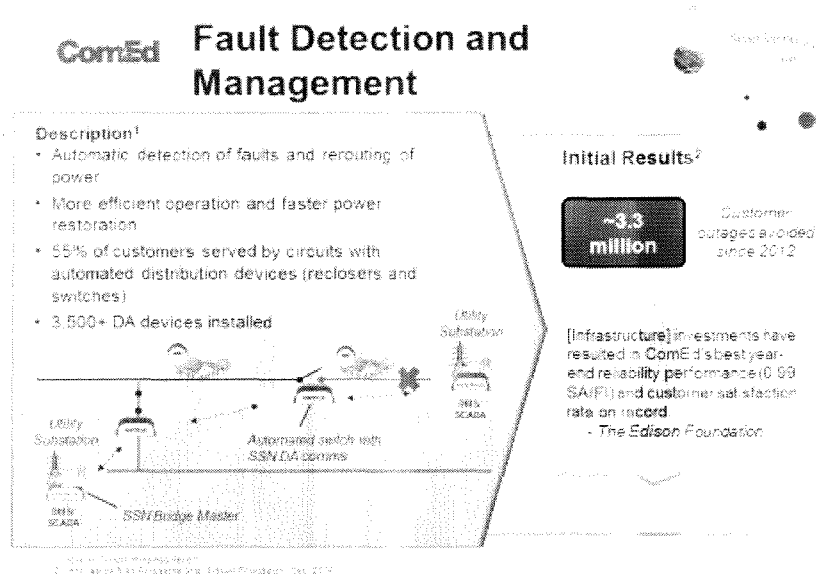


After the Napa County earthquake, PG&E's Smart Grid infrastructure was credited for enabling crews to restore service to the vast majority within 24 hours. And in the aftermath of the Pineapple Express Rainstorm in 2014, crews vastly reduced the time needed to find the cause of a failure from hours to minutes, greatly improving outage response and crew restoration performance.

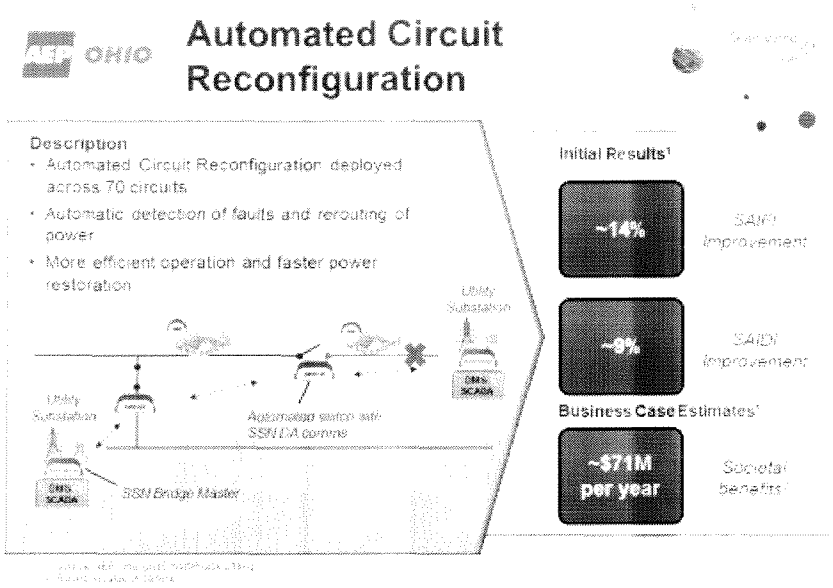


Enhanced Reliability: Several Silver Spring customers are using their network infrastructure for AMI and for DA reliability solutions. Florida Power & Light has deployed over 6,000 distribution devices, which share AMI network assets for routing data and management traffic. Other utilities like PEPCO, Indianapolis Power & Light and American Electric Power are operating their networks in a shared fashion as well. Commonwealth Edison has deployed about 3,500 grid devices over their Silver Spring Network to automate the detection of faults and reroute power around them.

These deployments have saved millions of customer interruption minutes annually, and have driven operational savings from avoided truck rolls. By utilizing a shared network for AMI and DA, SSN customers have saved considerable costs associated with network equipment, installation, maintenance and security testing.

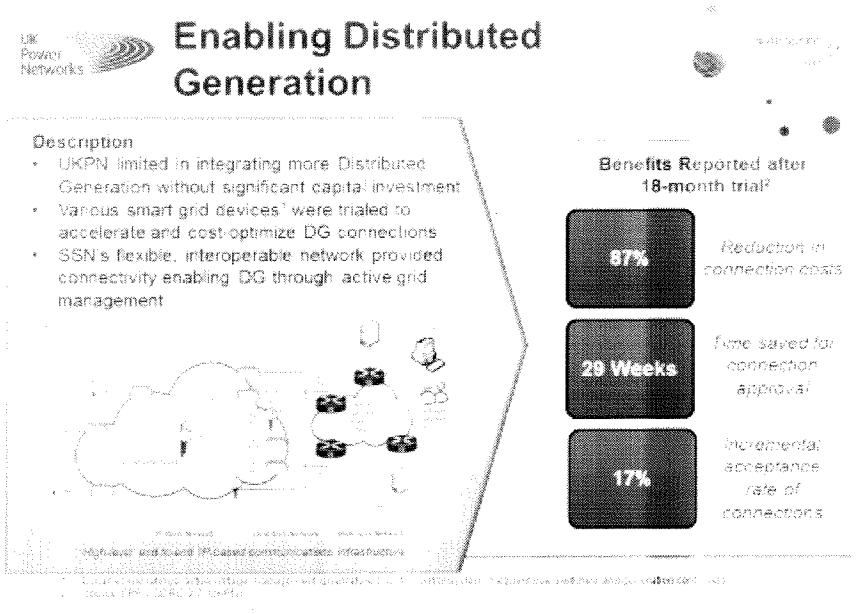


AEP Ohio implemented SSN's DA solution to support automated circuit reconfiguration across 70 circuits to automate fault detection and power rerouting. As a result, SAIFI has been improved by 14%, SAIDI by 9% and an estimated $71 million of annual societal benefits were realized (based on value of service).



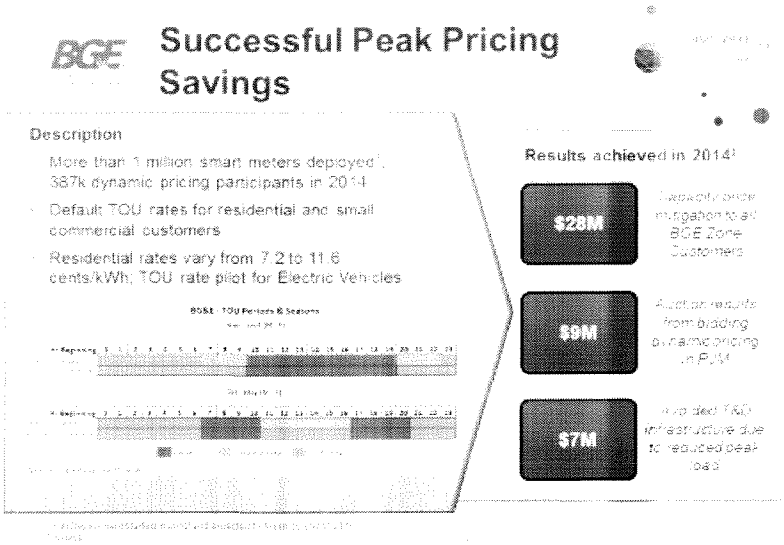
Renewables Integration: Smart grid is an enabling technology to help better integrate renewables. For instance, a smart-grid enabled Demand Response solution can help utilities balance the supply and demand of power to ensure that when there is a dip in renewable generation, service is not impacted. Additionally, Distribution Automation devices such as networked voltage regulators, capacitor banks, and load tap changes can help utilities regulate voltage on circuits where PV intermittency can cause fluctuations. For monitoring and control of distributed systems, PV metering enables utilities to leverage the security and scalability of their existing network to measure renewable generation at revenue-grade.

UKPN, a large distribution network operator in the UK, was limited in integrating more Distributed Generation (DG) without significant capital investment. UKPN trialed several smart devices including dynamic line ratings, active voltage managers, quadrature booster controls, 'frequent use' switches, and generation controllers to reduce connection costs and save time in obtaining connection approvals. SSN's flexible, interoperable network provided connectivity enabling DG through active grid management. This resulted in 87% reduction in connection costs, an average of 29 weeks saved for connection approval and 17% incremental increase in acceptance rate of connections.



Demand Response: Silver Spring platform supports several types of Demand Response programs, from time-differentiated pricing without in-home technology to HAN-based communication with devices like programmable communicating thermostats. For example, Baltimore Gas & Electric has deployed more than 1 million smart meters and had 387k dynamic pricing participants in 2014. As a result, in 2014, $28 million in capacity costs were mitigated for all BG&E zone customers, $9 million revenue was generated from bidding dynamic pricing into PJM and $7 milllion of T&D investment was avoided due to reduced peak load.

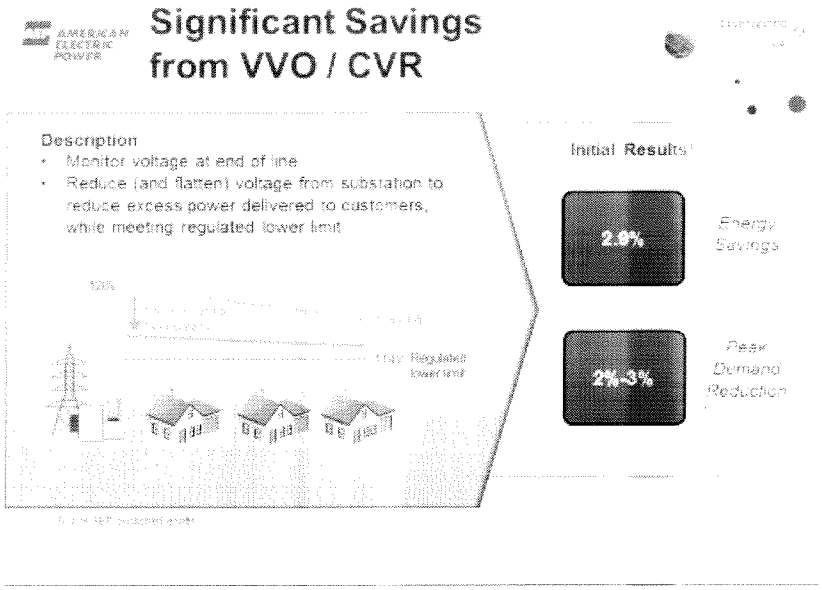
Additionally, PEPCO has set up a voluntary peak reduction program using its AMI infrastructure. 38% of customers have participated, saving over 4 million kWh and generating $5 million in customers bill credits per summer.



CVR or Volt/VAR Control: CVR or Volt/VAR Control can be another key application in achieving energy savings as well as peak demand reductions. Silver Spring CVR solution can provide up to 10%-15% more savings than other AMI-based approaches due to superior read performance and near-real-time voltage exception reporting.

Compared with DA-based approaches that use feeder meters on the primary (and don't measure the voltage drop on the secondary), we estimate that the Silver Spring-enabled approach generates approximately 25% more savings while leveraging the AMI investment to reduce equipment and installation costs. For example, American Electric Power (AEP) was able to reduce (and flatten) voltage from the substation to reduce excess power delivered to customers, while still meeting all regulations. Initial results were 2.9% Energy Savings and 2-3% Peak Demand Reduction.

Another example, Dominion Virginia Power used AMI-based CVR to reduce energy consumption in a trial area by 2.7%, or $40 per customer over the course of a year. After evaluating multiple vendors, Dominion selected Silver Spring as its AMI partner in part due to the network's ability to support Dominion's CVR, which is the critical component of their Smart Grid business case.



Smart Street Lights: Street lights are important assets that enhance the safety of residents, guide drivers and pedestrians, and promote economic activity after nightfall. However, they typically rely on old, inefficient technologies and so consume considerable energy, representing a large share of city budgets. They also require relatively frequent replacement. New technologies, such as LEDs and long-life photocells are helping reduce energy consumption and maintenance costs. Smart, networked, street lighting infrastructure further reduces energy costs and environmental impact, improves operations, and improves public safety.

By networking streetlights, utilities reduce existing street light deployment and maintenance costs. By combining these new lighting products with advanced networking (the same networking used for AMI), utilities save on network planning, deployment, monitoring, maintenance, security testing, of the street light network. Street lights offer an additional benefit by helping strengthen the mesh network, which could help, for instance, with AMI performance and AMI outage/restoration notification.

Conclusion

We would again like to thank you for the opportunity to provide comments on the EMP, the information provided above are examples of how deploying a single, unified network can enables a wide variety of benefits. Whether it is advanced metering, enabling more distributed energy reseources to be deployed on the grid, or by providing enhanced grid reliability, these investments provide real benefit to ratepayers, and can be realized in New Jersey as they have been across the US.