From: CATUCCI, KENNETH
Sent: Monday, August 24, 2015 8:20 AM
To: EMPupdate
Subject: NJBPU Board Members - Re Solar

NJBPU Board Members:

Please include strong language that prohibits the siting of large solar panel power plants on forestlands, farmlands, wetlands, critical habitat lands and any other environmentally sensitive lands. It is counterproductive to destroy sustainable land in order to sustain the environment; it makes no sense. The KDC Solar proposals in Jackson and Bedminster are just two examples of how to destroy the environment while trying to save it. The Energy Master Plan and all NJBPU rules and regulations should prohibit this.

Thank you,

Concerned Resident

Bedminster, NJ

rec'd 8/24

New Jersey Energy Coalition Comments
On the 2015 Update to the
2011 NJ Energy Master Plan

On behalf of the members of the New Jersey Energy Coalition (Coalition), thank you for the opportunity to provide comments on the update to the 2011 New Jersey Energy Master Plan (EMP). As background, the New Jersey Energy Coalition (Coalition) is a broad-based advocacy group whose membership includes 55 local and statewide companies and organizations which represent a broad cross-section of energy, labor, environmental, trade, academic, and civic communities. Some of our more prominent members include: Atlantic City Electric, Elizabethtown Gas, Exelon Corporation, Jersey Central Power & Light, New Jersey Natural Gas, PennEast Pipeline, Public Service Electric & Gas, South Jersey Gas, and Spectra Energy.

Our mission is simple; raise public awareness and generate public support for the increased production and distribution of clean, affordable and reliable energy in our state. Since it was founded in 2007, the Coalition has been actively engaged in promoting these objectives and commented on the 2008 and 2011 EMP. Our leadership and staff possess vast experience in public policy issues in New Jersey and proven energy expertise that make the Coalition uniquely qualified to provide comments and feedback for the Christie Administration's update to the 2011 EMP.

As a matter of policy, the Coalition continues to support the five overarching goals of the EMP:

- Drive down the cost of energy for all customers.
- Promote a diverse portfolio of new clean in-state generation.
- Reward energy efficiency, conservation and reduce peak demand.
- Capitalize on emerging technologies for transportation and power production.
- Maintain support for RPS of 22.5% by 2021.

We salute the Christie Administration for its forthright, balanced approach to charting the critical course for our State's energy needs. Because it is often one of the largest expenses for business and industry, the Coalition believes that energy sources are major factors contributing to improved economic and environmental conditions. Energy delivery also provides high-paying, long-term employment, as well as other financial benefits through its ripple effects on the state's economy. Therefore, it is incumbent upon policymakers to facilitate a climate where adequate supplies of clean, reliable, and affordable energy enables businesses to prosper and grow. The Coalition also believes that the environment must be protected. We support a balanced approach that assigns reasonable

quantifiable energy targets and sets goals that will not harm New Jersey's quality of life or the rich natural resources that our residents and visitors enjoy.

Since the 2011 EMP was last issued there have been a number of weather-related events that have seriously impacted New Jersey's utility operating companies, resulting in wide-spread and extended service outages unforeseen at the time of the last Plan update. These events, along with other opportunities that have become clearer over the course of the past four years, prompt the Coalition to offer the following suggested additions and/or amendments to the Policy Recommendations in the current EMP. These recommendations will further advance the Administration's strategic objectives in regards to the development and use of energy in New Jersey over the next decade.

1. **The Coalition Supports Investment In Electric & Gas Distribution System Infrastructure To Enhance Resiliency.**

As alluded to above, Hurricane Irene, and Superstorm Sandy both caused extensive damage to energy delivery infrastructure which took many days and millions of dollars to repair and restore. In some instances, service will never be restored. Clearly, significant investments have already been made, however, additional prudent and targeted investment to upgrade select electric and gas distribution facilities must be aggressively pursued in order to further harden critical infrastructure to protect the state's electric and gas customers. An added by-product of such ongoing initiatives will be the associated economic benefits that will result from the work in the form of additional jobs, and ancillary support services...etc. The EMP should recognize and encourage such initiatives.

2. **The Coalition Supports Investment In Electric & Gas Transmission System Infrastructure To Enhance Resiliency.**

Investment in electric macro-grid, as well as intra-state natural gas pipelines must be encouraged in the EMP to enhance energy delivery reliability. The result will be additional capacity (i.e., more supplies), reduced bottlenecks (i.e., less congestion), less price volatility, and/or lower energy costs for system operators. Savings in turn, will be passed on to end-users in the form of lower electric and gas bills.

3. **The Coalition Supports Regulatory Initiatives Which Promote Predictable, Sustained, Infrastructure Investments.**

The EMP should clearly encourage and support regulatory reform efforts that make New Jersey's electric and gas delivery systems more resilient and efficient, while also recognizing the need for conservation. There is great need for regulatory initiatives that are reasonable, clearly-defined, understood, and accepted by all stakeholders. Implementing clear, forward-looking and long-term

plans to execute this essential work is far more efficient and cost-effective than painstakingly requiring operators to seek and obtain regulatory approval for these investments every 1-3 years.

The Coalition also recommends that the EMP note the need for the BPU to evaluate and selectively implement certain alternate ratemaking mechanisms, including those "best practices" being effectively utilized by other states. Encouragement should also be given to the BPU to evaluate moving from the traditional historical cost-of-service ratemaking model to more forward-looking methodologies such as "performance-based ratemaking". Utilities need to be encouraged to identify and implement new and more economical ways for customers to purchase their electricity and natural gas service.

4. The Coalition Supports Initiatives Which Encourage Consumer Energy Efficiency (EE).

The EMP should seek to expand the utilities' roles in delivering information-driven EE to endusers. EE is the lowest-cost and cleanest energy source. Utilities typically have good brand recognition, customers' trust, and universal access to all customers, giving utilities an effective way to solicit customer participation. By combining information technology, the Internet and sophisticated monitoring and control tools utilities' endusers, particularly large buildings, can significantly reduce electricity consumption. Studies have shown that the states with the best EE programs are those where the local utilities are executing the programs. To this end, the EMP should also support the regulatory changes necessary to provide utilities with the right economic incentives to pursue EE, while also removing the financial impediments that harm utilities when customers reduce consumption.

5. The Coalition Supports Competitive Power Markets.

For New Jersey to achieve its energy related goals the EMP should emphasize the need for a clean, adequate and balanced portfolio of both new and existing generation resources to meet the energy reliability needs of the state. This includes a diverse mix of nuclear, natural gas, solar, wind, and coal power generation sources. Fostering a competitive, open, market-based power market is the most effective way of achieving the optimum mix of generation resources. References to approaches that do not adhere to this model should be removed from the EMP.

6. The Coalition Supports Nuclear Power Generation.

The EMP should strongly call out and support New Jersey's nuclear industry as it has for other emission-free resources such as renewables. This support should also include any new nuclear facilities being planned by intra-state generators. In addition to having no harmful pollution or carbon emissions, nuclear is also a source of jobs and economic development in the state. The nuclear industry is facing growing and costly safety and regulatory compliance costs which also must be acknowledged and addressed. It also bears mentioning that, for the first time, the EPA's new Clean

Power Plan recognizes new or expanded nuclear power to receive credit towards compliance with the Rule.

7. **The Coalition Supports Solar Installations At Landfill and Brownfield Sites.**

The EMP should reaffirm support for existing and new solar installations on these sites by encouraging utilities to develop solar projects at these otherwise limited-use locations.

8. **The Coalition Supports Increased Investment In New Technologies.**

The EMP should be amended to more forcefully encourage the implementation and usage of more emerging technologies. Items such as alternatively-fuel vehicles, combined heat/power opportunities, "smart meters", fuel cells, battery storage, micro-grids...etc. should be encouraged and supported by the state. Advancements in these important areas will occur through close collaboration between the state's policy makers, regulators, gas and electric utilities, and energy technology companies.

In closing, The Coalition wishes to express our appreciation to the BPU for the opportunity to offer the above-suggested enhancements to the 2011 Energy Master Plan. The Coalition and its members are key stakeholders in the vital mission of improving energy delivery to New Jersey's residents and we welcome the prospect of further assisting the BPU in improving the EMP.

Thank you for your consideration.

Sincerely,

Dr. Edward H. Salmon
Chairman

Richard Jackson
Executive Director

Phil Sgro
Deputy Director

August 24, 2015

Battery Storage Opportunities for the revised New Jersey Energy Master Plan

A.F. Mensah, Inc.

August 24, 2015

Outline

- Introduction
- Battery Storage and the 2011 Goals
- Next Steps for Consideration

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Introduction

Our Company

- Distributed Energy Company based out of Princeton, NJ.
- We develop and operate solar + battery storage systems
- Our technology platform includes Battery Storage Systems, Proprietary Controls, and Electricity Market Interfaces, which improve the value of distributed solar power systems and their interaction to electric distribution circuits

Example of Our Projects

- 25 solar + storage projects deployed or under active construction in Maryland and new Jersey (5MW portfolio)
- Pipeline of 10 additional projects across commercial and utility scale markets in New Jersey, Maryland, and Ohio
- The 2011 EMP listed 5 goals and mentioned battery storage as one of the potential technologies that can help meet those goals.

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Battery Storage & 2011 EMP Goals

Given the commercial deployment progress made by A.F. Mensah and other battery storage industry players, Battery Storage can now play a major role in addressing the 2011 EMP Goals:

- Drive down the cost of energy for all customers
- Promote a diverse portfolio of new, clean, in-State generation
- Reward energy efficiency and energy conservation and reduce peak demand
- Capitalize on emerging technologies for transportation and power production
- Maintain support for the renewable energy portfolio standard of 22.5% of energy from renewable sources by 2021

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Goal 1

5

Drive down the cost of energy for all customers

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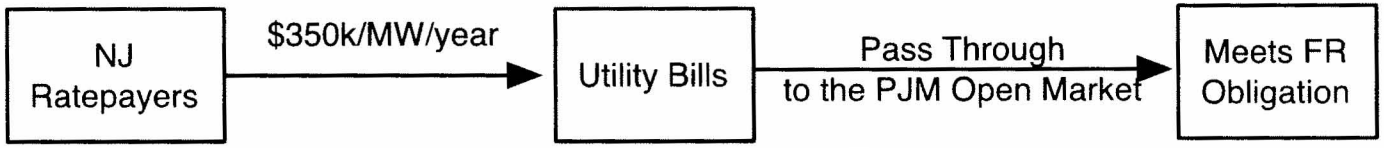
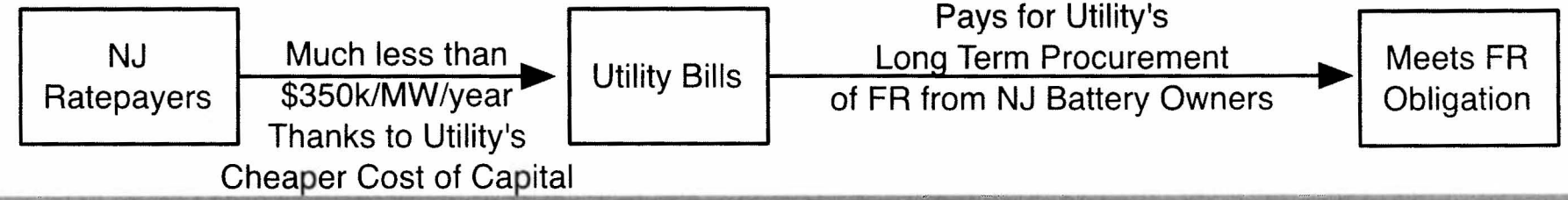
Goal 1

- As New Jersey Ratepayers, we are paying approximately $350k per MW per Year for Frequency Regulation (FR) in the PJM Spot Market (based on 2014 PJM Market Monitor Data)
- We can meet our PJM Frequency Regulation at a lower cost by allowing Utilities to rate base their procurement of frequency regulation from NJ based battery storage owners

Today's FR Procurement Mechanism



Cost Saving FR Procurement Mechanism



This cost saving procurement mechanism lowers an existing Ratepayers expenditure and allows Utilities to capture and rate base that expenditure instead treating it as a pass through expense

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Goals 2 & 5

Promote a diverse portfolio of new, clean, in-State generation

Maintain support for the renewable energy portfolio standard of 22.5% of energy from renewable sources by 2021

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Goals 2 & 5

- Solar is one of the fastest and most versatile renewable, clean, and in-state source of generation
- Batteries can improve the value of existing and future solar systems in 3 ways:
  - Increase financial value of solar generation
  - Make solar more resilient
  - Enable a more reliable integration of solar to the grid

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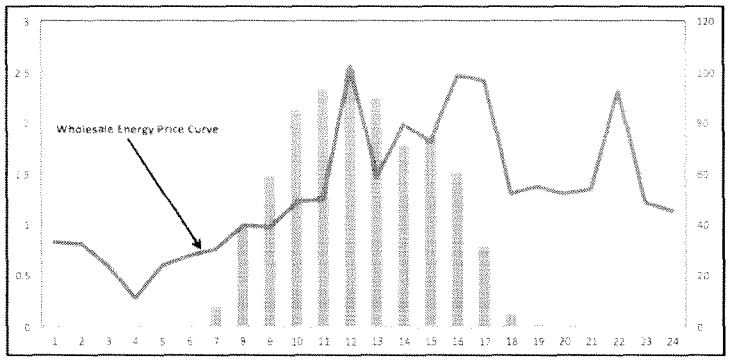
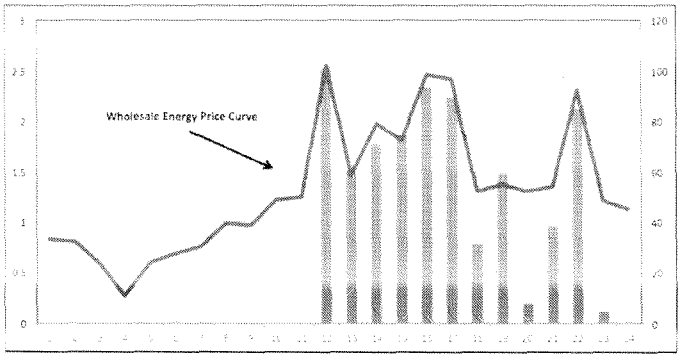
Using Battery Storage to Increase the Financial Value of Solar Generation





	Non-Shifted Solar Generation			Time Shifted Solar Generation		
Hours	Energy (MW)	Prices ($/MW)	Hourly Revenues	Energy (MW)	Prices ($/MW)	Hourly Revenues
1	0	$ 32.98	$ -	0	$ 32.98	$ -
2	0	$ 32.26	$ -	0	$ 32.26	$ -
3	0	$ 23.29	$ -	0	$ 23.29	$ -
4	0	$ 10.91	$ -	0	$ 10.91	$ -
5	0	$ 23.82	$ -	0	$ 23.82	$ -
6	0.001	$ 27.22	$ 0.03	0.001	$ 27.22	$ 0.03
7	0.187	$ 30.13	$ 5.63	0	$ 30.13	$ -
8	0.96	$ 39.47	$ 37.90	0	$ 39.47	$ -
9	1.479	$ 38.65	$ 57.17	0	$ 38.65	$ -
10	2.126	$ 48.76	$ 103.66	0	$ 48.76	$ -
11	2.335	$ 49.74	$ 116.15	0	$ 49.74	$ -
12	2.535	$ 102.10	$ 258.82	2.535	$ 102.10	$ 258.82
13	2.239	$ 58.45	$ 130.87	1.501	$ 58.45	$ 87.73
14	1.78	$ 78.82	$ 140.31	1.78	$ 78.82	$ 140.31
15	1.853	$ 72.40	$ 134.15	1.853	$ 72.40	$ 134.15
16	1.501	$ 98.37	$ 147.65	2.335	$ 98.37	$ 229.68
17	0.784	$ 96.52	$ 75.67	2.239	$ 96.52	$ 216.10
18	0.121	$ 51.82	$ 6.27	0.784	$ 51.82	$ 40.63
19	0.001	$ 54.97	$ 0.05	1.479	$ 54.97	$ 81.30
20	0	$ 51.83	$ -	0.187	$ 51.83	$ 9.69
21	0	$ 53.72	$ -	0.96	$ 53.72	$ 51.57
22	0	$ 92.30	$ -	2.126	$ 92.30	$ 196.22
23	0	$ 48.19	$ -	0.121	$ 48.19	$ 5.83
24	0	$ 44.95	$ -	0.001	$ 44.95	$ 0.04
	Non-Shifted Total Revenues		$ 1,214.33	Time-Shifted Total Revenues		$ 1,452.11

- Time Shifting Scenario
- New Jersey Electricity Pricing Zone
- Example of a 4MW Solar PV + Battery Storage

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Goal 3

Reward energy efficiency and energy conservation and reduce peak demand

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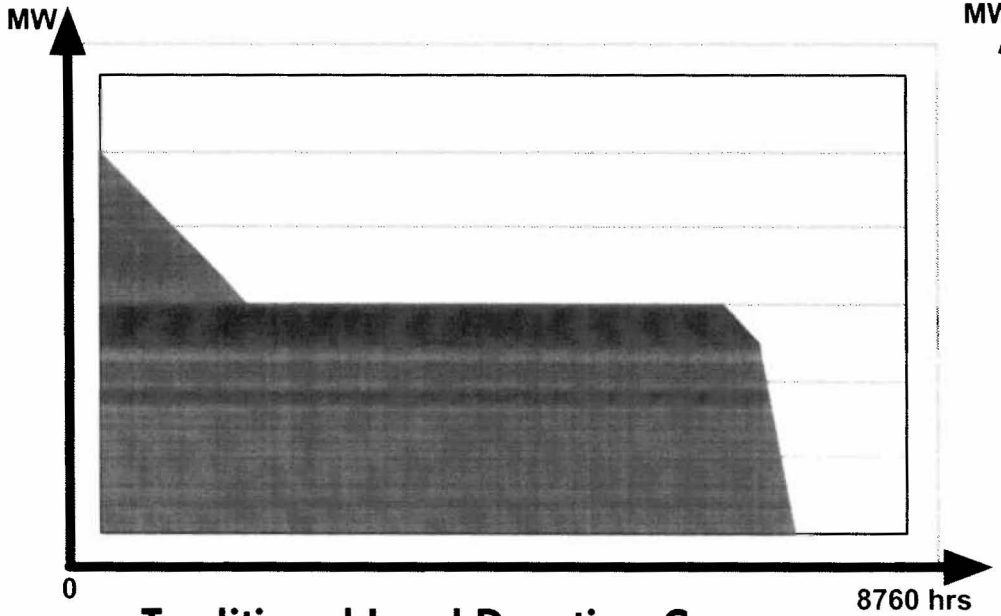
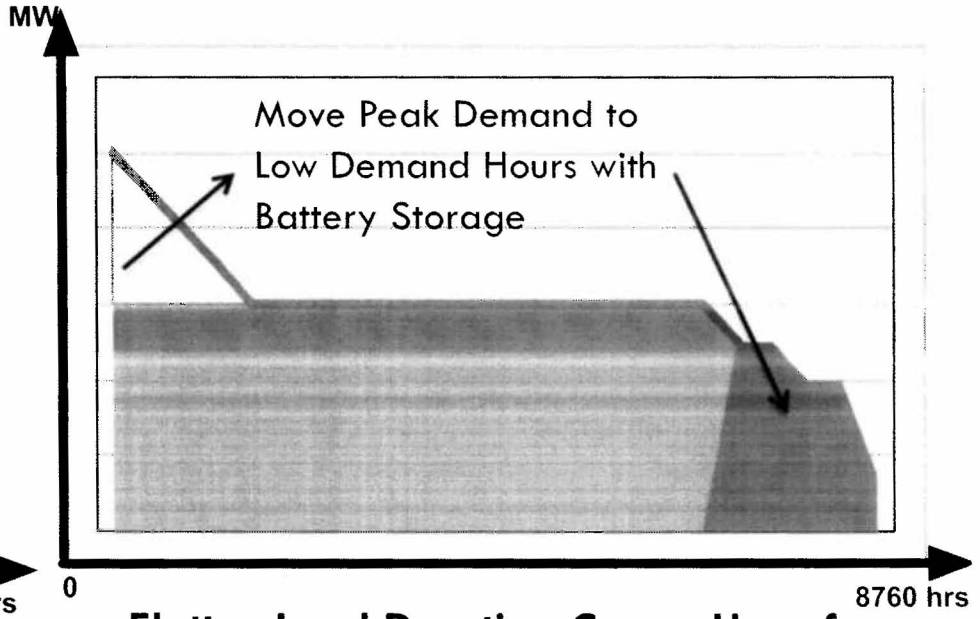
Goal 3

- Example of Peak Demand Reduction
  - Distribution Circuits tend to be oversized for peak demand that last only a fraction of the time
  - Batteries can shift peak demand in a way that reduce the net cost of distribution circuit upgrades



Traditional Load Duration Curve on Distribution Circuits



Flatten Load Duration Curve: Use of Battery Storage to smooth load demand

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Goal 4

Capitalize on emerging technologies for transportation and power production

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Goal 4

- The emergence of Electric Vehicles means added demand on the electric grid
  - Average Residential Peak Demand is 10 kVA (according to the Fire Protection Foundation – March 2010)
  - Each Nissan Leaf can add up to 6.6 kVA of demand
  - Each tesla Model S can add up to 20kVA of Demand
- As shown on Slide 11batteries can meet the additional peak demand contribution requirements from electric vehicles

Source: The Fire Protection Research Foundation – March 2010

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Next Steps for Consideration

- Continue to support stakeholder discussions among Utilities, Technology Companies, and Private Project Developers to review and eliminate growth barriers for battery storage
- Encourage and fund demonstration projects that use battery storage to address the 2011 EMP Goals
- Use data from demonstration projects to establish performance based incentives (market mechanisms) for wide scale battery storage rollout

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16

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From: Julie Lange-Groth
Sent: Monday, August 24, 2015 9:41 AM
To: EMPupdate
Subject: Energy Master Plan comments
Attachments: EMP comments final signed.docx

Dear EMP Update Board Secretary:
We respectfully submit submit the attached comments for the NJ Energy Master Plan (also shown below). Please contact us if you have any questions.

--
Best regards,

Julie Lange Groth
ANJEC Resource Center Director

Association of New Jersey Environmental Commissions (ANJEC) Comments on the Draft Energy Master Plan Aug. 24, 2015

The Association of NJ Environmental Commissions (ANJEC) appreciates this opportunity to offer comments on the 2015 Draft Energy Master Plan (EMP) in hopes of advancing New Jersey's clean energy future.

ANJEC works to establish and support environmental commissions in municipalities and counties throughout the state, educate public officials and concerned citizens and advocate for sustainable environmental action at the local level. Our 2,500+ members represent about 300 municipalities in all 21 counties of New Jersey.

In addition to protecting natural resources and fostering sustainable land use, environmental commissions are very engaged in encouraging municipal energy audits, local green initiatives and educating community members about how to save energy, cut costs and reduce their carbon footprint. It is estimated that energy represents as much as 30 percent of a building's operating costs, so ANJEC's efforts to help environmental commissions promote energy-saving retrofits for municipal buildings is also helping cash-strapped local governments reduce costs.

We support the EMP's stated objectives for managing our state's energy in a way that:

drives down the cost of energy for all customers; promotes a diverse portfolio of new, clean, in-state generation; rewards energy efficiency and energy conservation and reduces peak demand; capitalizes on emerging technologies for transportation and power production; and supports the renewable energy portfolio standard.

We also agree with the NJ Board of Public Utilities that the amended plan should address:

- Protecting critical energy infrastructure;
- Improving emergency preparedness and response by electric distribution companies;
- Increasing the use of microgrid technologies and

applications for distributed energy resources;

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

In the spirit of making the EMP as strong as possible, ANJEC offers the following comments for consideration.

1. Follow-through on existing EMP goals, especially for initiatives that have failed to materialize, such as off-shore wind projects.

2. We need much more aggressive clean energy goals that:

a. Comply with the Federal Clean Power Plan, especially regarding renewable deployment. The EMP should, but currently does not, establish a trajectory for compliance with that.

b. Comply with NJ's 2007 Global Warming Response Act, which sets a goal to reduce greenhouse gas (GHG) emissions by 80% below the 2006 level by 2050.

c. Restore the 30% renewable energy goal from the 2008 EMP, which the Christie Administration rolled back to a 22.5% renewable energy portfolio standard in 2011.

3. The EMP should address the critical need to reduce transportation-related GHG emissions, which comprise about 50% of NJ's carbon footprint.

The EMP should support and expand public transportation and introduce programs to reduce vehicle miles traveled. Incentivize EV adoption, which would bring multiple benefits to the state. It will not only reduce GHG emissions and dependence on fossil fuels, but also benefit electric utilities by increasing utilization of the public grid and the sale of electricity, thereby offsetting revenue lost to energy efficiency and conservation. More vehicle charging stations, with enough penetration in public streets and private parking lots, can provide a way to relieve range anxiety.

4. To increase renewable energy penetration, and improve resiliency in the process, the EMP should recognize the importance of electricity storage and offer incentives for expanded storage capabilities. This will not only deliver some short-term benefits to current grid operation (such as peak reduction), but also provide the foundation for replacing more carbon-based energy generation with clean renewable energy.

5. While there are some benefits to displacing coal-fired energy production with natural gas as a transitional fuel, the ultimate goal should be replacing all fossil fuels with clean energy that produces little or no climate-heating greenhouse gases. Therefore:

a. The EMP should discourage development of new infrastructure, such as pipelines, that encourage increased production and utilization of fossil fuels and pose serious environmental and health risks to the communities through which they pass.

b. Excessive dependence on natural gas could also create a structural weakness resulting in demand spikes, especially during the winter heating season. For the sake of market diversity, we should limit how much energy we get from any single resource.

6. NJ has fallen far behind on its 2011 Energy Master Plan goal of 1,500 MW from Combined Heat & Power for commercial businesses. We need to ramp up investment in Combined Heat & Power programs for the commercial sector as well as energy efficiency incentives, especially weatherization, for

the residential sector. New Jersey once ranked in the top 10 states nationwide for energy efficiency as recently as 2011, but has now fallen to 19th place.

a. To help ensure funds are available for these programs, the EMP should explicitly preclude the raiding of the Clean Energy Fund to balance the state budget, which has already lost ratepayers $1 billion during the Christie Administration.

7. THE EMP should call for NJ's return to the Regional Greenhouse Gas Initiative (RGGI). The decision to pull us out of RGGI in 2011 has cost our state $50 million a year in revenue and more than 1,800 jobs. The program has been strengthened in the last four years, and meanwhile, New Jersey has squandered close to $200 million that could have been invested in energy efficiency programs to save consumers money and reduce greenhouse gas emissions.

Thank you for your consideration of these comments. We would be happy to discuss them further with you and can be reache

Sincerely,
Jennifer M. Coffey
Executive Director
Association of NJ Environmental Commissions (ANJEC)

Association of New Jersey Environmental Commissions (ANJEC)

Comments on the Draft Energy Master Plan

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    b. Comply with NJ's 2007 Global Warming Response Act, which sets a goal to reduce greenhouse gas (GHG) emissions by 80% below the 2006 level by 2050.
    c. Restore the 30% renewable energy goal from the 2008 EMP, which the Christie Administration rolled back to a 22.5% renewable energy portfolio standard in 2011.
3. The EMP should address the critical need to reduce transportation-related GHG emissions, which comprise about 50% of NJ's carbon footprint.
    a. The EMP should support and expand public transportation and introduce programs to reduce vehicle miles traveled.
    b. Incentivize EV adoption, which would bring multiple benefits to the state. It will not only reduce GHG emissions and dependence on fossil fuels, but also benefit electric utilities by increasing utilization of the public grid and the sale of electricity, thereby offsetting revenue lost to energy efficiency and conservation. More vehicle charging stations, with enough penetration in public streets and private parking lots, can provide a way to relieve range anxiety.
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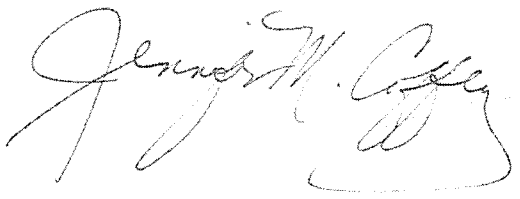

Jennifer M. Coffey
Executive Director

rec'd 8/24

SOMERSET COUNTY ENERGY COUNCIL

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Randolph Haviland

Donald Kasten

Walter Lane, PP/AICP

J.D. Majewski, PhD

Michael Merdinger

August 18, 2015

EMP Committee
c/o: Irene Kim Asbury, Secretary of the Board
NJ Board of Public Utilities
44 South Clinton Ave., 9th Floor
P.O. Box 350
Trenton, NJ 08625-0350

RE: Update of 2011 Energy Master Plan

Dear EMP Committee Members,

The Somerset County Energy Council (SCEC) is grateful for this opportunity to share its recommendations regarding the energy priorities that should serve as the platform for the updated State Energy Plan pursuant to the August 24, 2015 public comment deadline. In addition to a complete reorganization of the Plan document such that it's goals, objectives and implementation strategies are clearly stated; the SCEC recommends the updated Plan be built upon the following set of **prioritized** goals and objectives:

The cheapest kilowatt-hour of electricity is the one you never use.

Cost-effective energy efficiency measures lower energy costs over the long-term and produce significant benefits to customers, including:

- Lowering energy costs overall by reducing peak energy usage and providing a cheaper alternative to building and operating additional, marginal, and often the most expensive generating facilities.
- Lowering energy costs for customers that install Energy Conservation Measures (ECMs) systems by lowering energy usage.
- Making New Jersey businesses more competitive by lowering their energy costs.
- Utilizing the resultant energy efficiencies and cost savings to fund implementation of the ECM improvements.

Accordingly, New Jersey Should:

1) Support Public and Private Sector Investment in Energy Efficiency and Conservation

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

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

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

b) Use the 2015 study entitled, "Framework for Establishing a Somerset County Energy Savings Incentive Program" prepared by NJIT for SCEC as a model for estimating the tremendous untapped energy and cost saving opportunities that exist statewide, and utilize SBF revenues to build policies and programs through which electric utilities and consumers can benefit from implementing ECMs. A copy of this report is attached, and it is also available at the following link:
http://www.energysmartsomerset.org/council/SCEC%20Final%20Report%20ALL.PDF.

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

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

e) Enhance marketing of new ECM implementation programs and incentives, showcase success stories and increase public outreach efforts through partnerships with state, county and local government entities (including the SCEC!) and organizations such as Sustainable Jersey.

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

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

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

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

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

e) Use energy storage technology to improve grid resiliency, provide back-up power and well as improve efficiencies.

f) Require that responsibilities for enhancing energy emergency protective measures be established as part of the new energy business model and include more effective demand response system solutions.

3) Increase Reliance on Clean Energy

a) Recognize that natural gas power generation is a short-term solution. Provide routinely updated cost/benefit analyses for new in-state gas power generation and pipeline expansions

that are based on full cost, life cycle accounting that takes into consideration environmental & natural resource damages, health impacts and the duration of supply availability, in addition to economic considerations including job creation.

b) Adopt policies and provide incentives to expand instate clean & renewable energy generation, and expand access to renewable energy opportunities to all sectors.

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

c) Increase the renewable energy portfolio standard goal, since the 2020 goal for NJ has already been achieved.

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

4) Achieve Energy Sustainability

a) Restore NJ's leadership nationally with regard to advancing energy sustainably goals and its economic competitiveness by reforming the energy system so that is clean, secure, reliable and affordable.

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

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

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

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

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

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

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

The Somerset County Energy Council would welcome the opportunity to discuss the above recommendations in detail with the EMP Committee. Please contact (908) 231-7021 to schedule a meeting.

Sincerely,

William Amann

William Amann, PE, LEED AP, Chairman

cc: Somerset County Board of Chosen Freeholders
Somerset County Planning Board
Somerset County Business Partnership

August 24, 2015

Irene Kim Asbury
Secretary to the Board
New Jersey Board of Public Utilities
44 South Clinton Street
Trenton, NJ 08625

RE: SunEdison, Inc. Comments on Update to the 2011 Energy Master Plan

Dear Secretary Asbury,

SunEdison, Inc. ("SunEdison") is pleased to submit the following comments on the planned update to the 2011 Energy Master Plan. SunEdison is the world's largest renewable energy developer, and a leading solar technology manufacturer and provider of energy services. Serving business, public sector, utility, and residential customers, SunEdison is dedicated to transforming lives by delivering economical, clean, renewable energy to communities around the globe.

SunEdison was an early entrant to the New Jersey solar market. We currently operate 86 megawatts (MW) of solar generation at over 250 customer sites. Additionally, SunEdison employs nearly 50 full-time workers at our Pennsauken regional facility, and has strategic relationships with several locally-based EPC contractors and channel partners.

New Jersey has a proud legacy of providing critical early-market support to new, clean energy technologies that soon emerge to become important and significant components of the state's diverse resource mix. New Jersey was one of a handful of states to help jumpstart solar PV through a sustained, stable and scalable incentive program and cutting edge policies on net metering and interconnection. As a result New Jersey today boasts over 1,500 MW of solar capacity; and total U.S. installations topped 6.2 gigawatts (GW) on an annual basis.[1] The installed cost of solar is today half of what a similar system would have cost in 2010[2] and is approaching grid parity in many states throughout the Northeast, including New Jersey. Similarly, along with a handful of other states, New Jersey's early stage support for the storage industry provides a critical mass for investment in new and innovative storage technologies that will continue to drive scale and reduce costs such that storage becomes more economically viable in an increasing range of applications.

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[1] http://www.greentechmedia.com/articles/read/the-us-installed-6.2-gw-of-solar-in-2014-up-30-over-2013

[2] The National Renewable Energy Labs report that the average price of solar installations has declined at a rate of 6-8% annually since 1998. See U.S. Department of Energy, Photovoltaic System Pricing Trends (2014), available for download at http://www.nrel.gov/docs/fy14osti/62558.pdf.

These investments have paid - and will continue to pay - enormous dividends for New Jersey ratepayers and citizens. Large-scale deployment of solar PV, particularly when coupled with storage capability offers, a wide range of economic, energy-system related and environmental benefits, including but not limited to the following:

- *Avoiding the purchase of electricity during system peaks.* Increased deployment of PV and other customer-sited generation can be a powerful tool to mitigate price spikes experienced during peak demand periods. In today's competitive electricity marketplace, where the market clearing price paid to all generators is set by the most expensive plant needed to run in order to satisfy consumer demand, increased deployment of PV can help utilities avoid costly purchases during peak hours. A recent New York State Energy Research and Development Authority (NYSERDA) analysis found that a deployment program resulting in 2,500 MW of solar PV by 2020 and 5,000 MW by 2025 would result in a wholesale market price suppression value of over $2 billion over the study period.[3]

- *Fuel price hedge protection.* New Jersey currently derives one-third of its electric generation from natural gas, coal and other fossil-fired generation. Because PV is a renewable resource that requires no purchased fuel to operate, they are not subject to the considerable volatility and risk of future price increases commonly associated with more conventional generation. These cost increases are passed through to all consumers through the utility fuel adjustment clause that appears on the monthly electric bill. By "locking in" a percentage of its electric supply from customer-sited renewable resources, New Jersey can insulate itself against the very real risks of a future run-up in the price of primary fuels.

- *Transmission loss savings.* As much as 15% of the useful energy that is paid for by the utility (and ultimately ratepayers) is lost when the energy that is generated by large centralized power plants and shipped to area homes, business and factories through the transmission and distribution network. Losses are most significant (and also most expensive) when the grid is under the greatest stress during hot, humid conditions – precisely when PV output is at its highest. These losses are avoided by placing generation closer to the point of consumption.

- *Avoided environmental compliance costs.* As Clean Power Plan regulations addressing global warming pollution from the power sector are phased-in, owners of carbon-intensive generating plants will face mounting compliance costs. Since solar PV emits no pollutants, increasing the proportion of electricity supply from this clean energy option will result in the avoidance of environmental compliance costs that would otherwise be passed on to New Jersey consumers in the price of electricity.

- *Investment in distribution system upgrades and expansion.* As demonstrated by the recent utility grid hardening filings in the aftermath of Hurricane Sandy, utility customers are shouldering an enormous economic burden to maintain, replace, expand and harden local facilities needed to reliably distribute power. While efforts to modernize this infrastructure are essential, distributed resources such as solar PV, especially when paired with storage, can serve as a cost-effective

[3] New York State Energy Research and Development Authority, New York Solar Study (2012).

alternative to more traditional "poles and wires" have largely been ignored, and in fact, can provide dispatchable capacity that would reduce a portion of utility fossil fuel stand-by capacity. Since the need for distribution system investment is often demand-driven, when strategically located in overstrained areas of the grid, PV's strong coincidence with peak demand could help defer or avoid the need for such investments, especially when energy storage systems are incorporated into the grid.

- *Avoided payment for ancillary services.* Utilities and other load serving entities are responsible for compensating providers of "ancillary services", defined by FERC as encompassing "those services necessary to support the transmission of electric power from seller to purchaser given the obligations of control areas and transmitting utilities within those control areas to maintain reliable operations of the interconnected transmission system." In principle, owners of PV can work collaboratively with the distribution utility to configure their system to provide certain ancillary services, such as voltage support, allowing the utility to avoid payment for such services through the grid operator, while also enhancing grid reliability.

In addition to these direct, cost-savings to utilities and their customers, PV offers a host of benefits to the people of New Jersey. These societal benefits include but are not limited to:

- *Economic development and job creation.* As a distributed resource, solar generates more jobs per MWh than any other renewable energy technology.[4] These are high-skilled, high-paying jobs throughout the PV value chain, including wafer, cell and module manufacturers, integrators of cells into systems, power electronics manufacturers, distributors, designers and system installers. The Solar Energy Industries Association reports that there are over 500 New Jersey companies spanning the PV value chain, employing more than 7,200 workers.[5]

- *Avoided environmental and public health impacts.* Even with strict emission controls, residual power plant pollution continues to exact a significant toll in terms of impaired public health and ecosystem degradation. A new study from the NYU Langone Medical Center of 300,000 subjects in the Tri-State area found a 25% greater risk for Carotid Artery Stenosis, the narrowing of the arteries to the brain and a contributing cause of stroke, as a result of ingestion of small particulate pollution from power plants and mobile sources.[6] Mercury emissions, over one-third of which come from coal-fired generation, is a bio-accumulative neurotoxin (i.e., it increases in toxicity as it moves up the food chain) and is said to affect cognitive and motor skill development in children; in fish and wildlife, mercury contamination results in reproduction, neurological and behavioral disorders.[7] The New York State Department of Health has issued a health advisory warning against the consumption of fish from 87 water bodies located throughout New York State. As a non-emitting renewable energy technology, these public health and wildlife impacts are mitigated as solar displaces fossil generation and represents a bigger share of New Jersey's overall resource mix.

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[4] *US Senate Hearing on Environment and Public Works*. Prof. Dan Kammen of UC Berkeley, Sep 25 2007).
[5] http://www.seia.org/state-solar-policy/New-Jersey
[6] "Study: Breathing NY polluted air can increase risk of stroke", Daily News, March 5, 2015.
[7] *See, e.g.*, U.S. Environmental Protection Agency's *Mercury White Paper* http://www.epa.gov/ttn/oarpg/t3/memoranda/whtpaper.pdf

SunEdison's three main recommendations are intended to enhance the five overarching goals articulated in the 2011 EMP – goals which we believe are still important and relevant to New Jersey's energy profile today:

1. Drive down the cost of energy for all customers;
2. Promote a diverse portfolio of new, clean, in-state generation;
3. Reward energy efficiency and energy conservation and reduce peak demand;
4. Capitalize on emerging technologies for transportation and power production;
5. Maintain support for the renewable energy portfolio standard of 22.5% of energy from renewable sources by 2021.

Specifically, SunEdison recommends the following changes in law and policy to foster achievement of these five state energy goals:

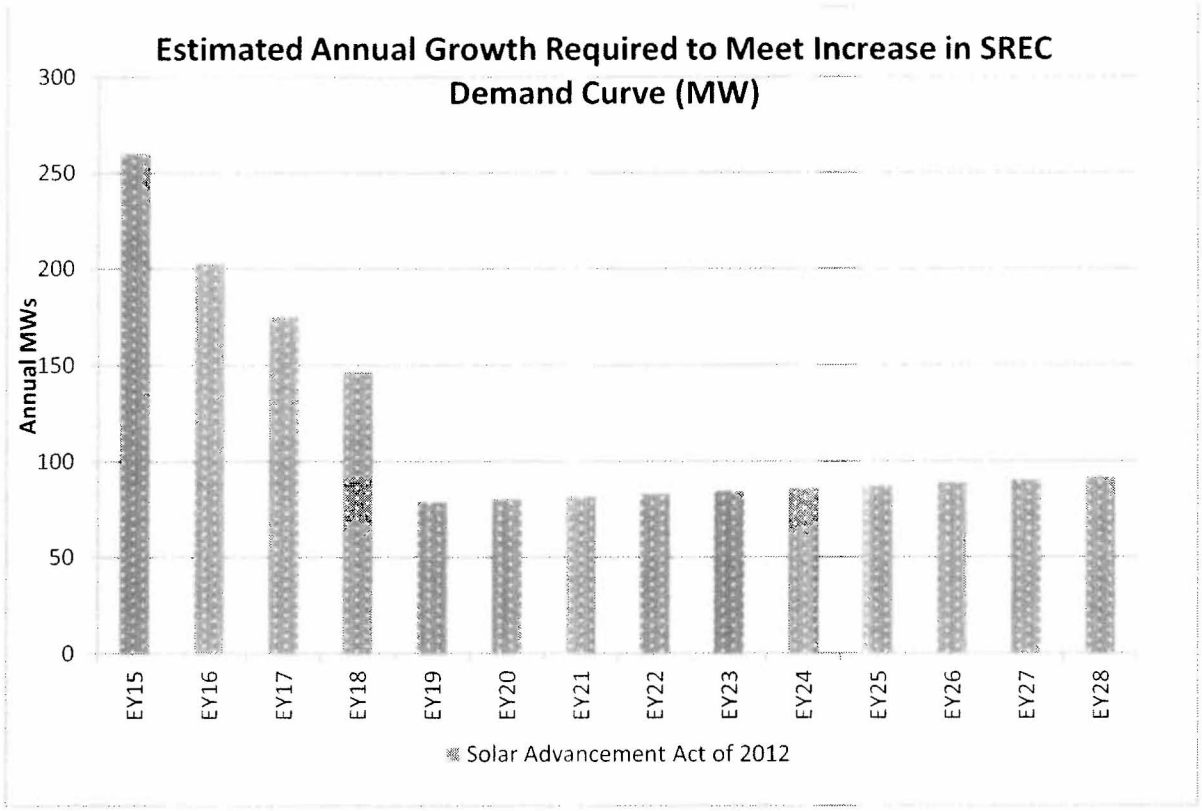
1. Adjust New Jersey's Demand for Solar Renewable Energy Credits (SRECs);
2. Expand and enhance the BPU Energy Storage pilot program and reduce barriers to storage interconnection; and
3. Reform of New Jersey's Aggregated Net Metering Policies.

Each of these core recommendations is discussed in more detail below.

Adjust New Jersey's Demand for Solar Renewable Energy Credits

But New Jersey' solar market is at a critical crossroads. In 2012, New Jersey lawmakers passed the Solar Energy Advancement and Fair Competition Act (SEAFCA). That legislation was an essential intervention in the state's Solar Renewable Energy Credit (SREC) market. By accelerating the near-term demand for SRECs, SAEFCA reversed a precipitous decline in SREC prices, stimulated demand for new solar projects, and preserved New Jersey's growing but still nascent solar industry. Unfortunately, under the particular formulation of SAEFCA, this near-term support for additional solar development came at the expense of future growth. While a crisis in the New Jersey solar market was averted, we are once again facing a day of reckoning.

As depicted in the graph below, without a legislative correction, New Jersey's solar market is headed for – indeed, is already in the midst of - a significant contraction. By our estimates, new development of solar will shrink at an annual rate of approximately 50 MW per year over the next 3 years, and then face a more significant demand "cliff" in 2019, reaching a steady state annual development rate of 75-90 MW per year. During this latter period, annual solar development will be only a third of what it is today.



In real terms, this means that only one-third of the local workforce that is required today to sell, design, permit, distribute and install New Jersey's solar resource base will be needed in the future. Only one-third of the investment in the state's distributed solar resource base, most of which comes from capital sources outside New Jersey, will be made. And fewer New Jersey homeowners and businesses will be able to take advantage of this stable and predictably priced resource as a means of controlling their electricity costs. This contraction of the solar industry is a function of state policy, and only an act of the legislature, working together with the Christie Administration, will prevent the serious economic dislocation that is latent in this SREC supply curve.

We look forward to working with the legislature and the Administration to adjust the scheduled additions of solar resources. Given continuing declines in the underlying costs of solar PV, we believe that a more stable and sustainable forward curve can be developed without unduly exposing non-generating ratepayers to additional compliance costs. Indeed, given the multi-faceted benefits noted previously, additional near-term commitments to in-state solar deployment are likely to yield benefits well in excess of the costs of any incremental obligations. It is important to note that a more robust renewable energy program will position New Jersey to better meet the requirements of the recently released federal Clean Power Plan.

Expand and enhance the BPU Energy Storage pilot program and reduce barriers to storage interconnection

It's becoming increasingly clear that the addition of energy storage on the grid has many customer and ratepayer benefits including providing several grid-level benefits such as fast responding frequency regulation, blackstart, improved power quality, and emergency back-up. The BPU's Energy Storage Incentive Program was a good start but should be expanded and enhanced. And while energy storage on the grid is relatively new, utilities should be prevented from requiring unnecessarily costly and time consuming interconnection studies, and instead follow the same simplified interconnection rules for solar.

Reform of New Jersey's Aggregated Net Metering Policies

A second and related element of SEAFCA that is ripe for review and revision is the provision related to aggregated net metering. This provision – allowing a satellite customer account to be served by a solar generating facility that is not directly on-site – has proven ineffectual due to significant limitations on customer participation and benefits and has therefore gone virtually unsubscribed. By contrast, similarly progressive solar states such as New York, Massachusetts and Maryland have experienced robust participation in their aggregated net metering programs, owing to the considerable flexibility built into the program rules.

There are strong public policy reasons to support relaxation of the stringent eligibility requirements under the New Jersey aggregated net metering program. First, aggregated net metering offers an opportunity for an expanded pool of customers to participate in and benefit from a solar project, even if they lack the physical conditions (e.g., absence of shading, structurally sound and obstruction free rooftop) necessary to support a system on-site. Second, aggregated net metering enables customers who may otherwise lack the financial resources to host a dedicated solar system to nevertheless participate as a fractional beneficiary in a clean energy project. New York and Massachusetts have both linked the aggregated net metering model to efforts to extend access to solar and other distributed renewable resources to the low- to moderate-income communities. Third, aggregated net metering can facilitate achievement of New Jersey's clean energy goals at the lowest cost, by supporting larger projects that benefit from economies of scale in development.

In order to achieve the original promise and legislative intent behind New Jersey's aggregated net metering, SunEdison suggests policymakers consider revisions to the New Jersey model. In adopting such reforms, we recommend considering the Massachusetts and New York programs insofar as these programs have a proven track record of stimulating customer participation.

In particular, New Jersey should follow the lead of New York and Massachusetts in setting a more equitable net metering credit value for net excess generation. As interpreted by the BPU, the structure of Section e. permits netting at *retail* value only for "the customer's facility or property on which the solar system was installed"; whereas only *wholesale* value is accorded to generation in excess of the host customer's annual consumption. Contrary to the general usage of the concept of aggregated net metering, which provides satellite accounts with a direct financial benefit through a kilowatt-hour for

kilowatt-hour reduction in their monthly bills for generation in excess of that used by the solar host, New Jersey's aggregated net metering statute provides satellite accounts with no financial benefit whatsoever. Indeed, SEAFCA's aggregated net metering provisions offer nothing new. Owners and operators of solar generation have always had the ability to segment a project such that a portion serves behind-the-meter load under a traditional net metering configuration; and a portion is connected to the grid with power sold to the utility under a Qualified Facilities agreement or into the organized wholesale market for energy.

A more comprehensive comparison of the three states' programs along key design elements is presented below. As reflected in Table 1, New Jersey's aggregated net metering regime is more restrictive than peer states in important design elements.

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SunEdison appreciates the opportunity to provide our views. We look forward to working with the Energy Master Plan Board and all stakeholders in realizing the state's vision for and affordable, clean, and secure energy infrastructure.

Respectfully submitted,

Fred Zalcman

Fred Zalcman
Managing Director of External Affairs, Eastern U.S.
SunEdison, Inc.

TABLE 1. AGGREGATED NET METERING COMPARISON BY STATE
August 2015

DESIGN FEATURE	NJ NET METERING AGGREGATION	NY REMOTE NET METERING	MA VIRTUAL NET METERING
Aggregate Service Territory Caps	No cap; BPU may suspend once NEM generation reaches 2.9% of annual sales	6% of historic peak demand; may be increased by NYPSC	5% of historic peak for public entities; 4% of historic peak for private entities
System Size	100% of usage of on-site and off-site load	2 MW	Up to 2 MW/unit for public systems
Geographic Limitations	All participants must be within 5 mile radius of one another and in same IOU service territory	Same IOU territory and ISO load zone	Same IOU territory and ISO load zone
Credit Value	Retail credit for on-site; wholesale rate for off-site credit allocation	Offsets all volumetric (kWh) charges	Varies by system size, technology and host classification
Customer Group Eligibility	Limited to certain public entities	All customer classes and market segments eligible	All customer classes and market segments eligible
Customer Affinity Requirements	Must all be facilities owned or operated by customer	Must all be facilities owned or operated by customer unless participants in a Community DG project	No affinity requirement
Rate Class Limitations	All customers must be in same rate class	No restriction	No restriction
Supplier Limitations	All customers must have same supplier/provider	No restriction	No restriction
Property Ownership	Customer must own project property and own/operate off-site accounts	Customer must own or lease project property and participating accounts	No property restriction

AARP
Real Possibilities

August 24, 2015

Irene Kim Asbury, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
PO Box 350
Trenton, New Jersey 08625-0350
EMPupdate@bpu.state.nj.us

Re: NJ Energy Master Plan Update

Dear Secretary Asbury,

On behalf of AARP's 1,300,000 New Jersey members, thank you for the opportunity to provide comments regarding the update of the 2011 Energy Master Plan (EMP). We look forward to receiving the actual EMP Update when it is published.

Household Affordability of Essential Utility Services

AARP is the only national advocacy organization working in the states to advance energy affordability and consumer protections from unfair utility policies and rate increases. We continue to applaud the state's emphasis on driving down the cost of energy for all consumers and encourage the updated Master Plan maintain this central focus, noting that the NJ Board of Public Utilities has much work left to do in this arena. New Jersey's residential electric prices are the 9th highest in the contiguous U.S. Today residential customers in New Jersey pay electricity prices that continue to be among the highest in the nation and are 21% higher than the national average for all states. According to the U.S. Energy Information Administration, residential electric rates in New Jersey are currently higher than they were at this time last year and the year before.

Telephone, energy, water, and sewer services typically account for about 7 percent of household expenses, according to the US Bureau of Labor Statistics' 2013 Consumer Expenditure Survey. That figure is higher for seniors and other low-income populations; it is 12 percent among adults age 65 and older who have income below 200 percent of the federal poverty line. Average utility expenditures for households headed by people age 65 and older have been rising faster than inflation.

New Jersey must maintain a strong system of regulatory oversight. Energy Markets must be transparent; all consumer information must be available and affordable; abuse of market power and unfair trade practices must be controlled. Moreover, New Jersey must be ever vigilant in

ensuring that deregulation does not help only certain customer classes, while possibly harming others. Strong safeguards are therefore essential. We must also maintain provisions for universal service, financial assistance to low-income households, and affordable, high-quality service for all residential consumers to ensure that all consumers benefit.

Emerging Issues Since 2011 – Protecting Critical Energy Infrastructure

Superstorm Sandy and other major storm events, including the recent June, 2015 storm that left tens of thousands of customers without service for many days, have raised the profile of our state's need to maintain critical utility and telecommunications infrastructure. All consumers must be able to rely on the availability of safe, affordable, and high-quality utility and communications services - it is essential to health, safety and economic welfare

Because these services are essential, consumers already pay handsomely to support utility infrastructure in their current rates. And they are beginning to pay more. For example, last year PSE&G was approved for an additional $1 billion in rate increases to improve infrastructure; this year they are requesting approximately $1.6 billion more.

In January, 2013 the NJ BPU adopted a comprehensive Decision and Order on storm preparedness and response which contained numerous and extensive recommendations. We encourage the Board to regularly and publicly release easily accessible 'report cards' documenting progress on the actions the Board and the state's utility industry were ordered to take under that Order.

Regulators should ensure that all infrastructure improvement projects provide demonstrable benefits to consumers that justify their costs in order to be approved. Adequate consumer protections must be place to ensure that rates are fair. New Jersey should establish substantial penalties for failing to achieve baseline performance levels. Any penalties incurred under these standards should either be returned to all customers in the form of a credit on their bills or paid to customers affected by the degradation of service.

We have also learned that critical energy infrastructure cannot operate without critical telecommunications infrastructure. For many decades, traditional wireline voice networks have delivered reliable and high quality service, providing value to consumers and contributing to critical public safety objectives. In fact, landline phone companies have long said that their customers can pick up the phone and get a working dial tone 99.999 percent of the time. Now many people are moving away from copper phone service – some voluntarily, some not. However, that does not mean that consumer expectations will change along with the technology. Consumers expect the same network reliability, access to emergency service, and protections to which they have grown accustomed. NJ BPU should ensure that communications networks function reliably and consistently during favorable weather conditions and emergencies regardless of whether the telecommunications provider offers services over wireless, copper, fiber-optic or some other technology.

AARP New Jersey, Forrestal Village, 101 Rockingham Row, Princeton, NJ 08540 (609) 452-3906
www.aarp.org/nj

Moreover the NJ BPU should prevent efforts by incumbent telecommunications carriers to dismantle or retire any portion of the copper-wire network if such actions would limit effective competition and customer choice, degrade service, or more generally raise public interest concerns.

Thank you for your careful consideration of AARP's comments.

Sincerely,

Douglas Johnston
Interim State Director

Evelyn Liebman
Associate State Director

AARP is a nonprofit, nonpartisan organization with a membership that helps people 50+ have independence, choice and control in ways that are beneficial and affordable to them and society as a whole. AARP does not endorse candidates for public office or make contributions to either political campaigns or candidates. We produce AARP The Magazine, the definitive voice for 50+ Americans and the world's largest-circulation magazine with over 35.1 million readers; AARP Bulletin, the go-to news source for AARP's millions of members and Americans 50+; AARP VIVA, the only bilingual U.S. publication dedicated exclusively to the 50+ Hispanic community; and our website, AARP.org. AARP Foundation is an affiliated charity that provides security, protection, and empowerment to older persons in need with support from thousands of volunteers, donors, and sponsors. We have staffed offices in all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.

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NEW JERSEY CHAPTER

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Via e-mail: Jeff.Tittel@sierraclub.org

August 24, 2015

President Richard Mroz
New Jersey Board of Public Utilities
PO Box 44 S. Clinton Ave
Trenton, NJ 08625

RE: New Jersey Sierra Club Comments on 2011 Update to Energy Master Plan

Dear President Mroz:

Thank you and the Board of Public Utilities for accepting these comments. We believe it is important that the BPU update the 2011 Energy Master Plan, since 2011 we have experienced devastating climate impacts especially from Hurricane Sandy. This makes it even more crucial that we reduce greenhouse gases and carbon pollution to protect us from future climate impacts. The major change between the 2008 EMP and 2011 is that it reduced our renewable energy goals and increased fossil fuels. This shifted the state from utilizing renewable energy to natural gas. We have the tools to reduce greenhouse emissions and make sure that New Jersey's energy future is built on clean renewable energy and energy efficiency. Our state was on track to meet the clean energy goals outlined in 2008, but instead this setback has cost the state economic stability and critical pollution reductions. We believe the EMP must go back its original goals to achieve 30 percent renewable energy and 20 percent energy efficiency by 2020.

New Jerseyans are demanding action on climate change, want green job creation, and a commitment to reducing our dependence on fossil fuels. New Jersey can and will meet these goals, but it will take continued leadership and an Energy Master Plan that moves us forward. We must expand our Renewable Portfolio Standard to meet the 30 percent by 2020 goal. The plan must go beyond the 2020 horizon and adopt 80 percent renewable energy by 2050. These goals will allow the state to comply with the Global Warming Response Act. Currently the state does not have an energy efficiency standard. We need to push for a 20 percent reduction in energy use by 2020 and 30 percent reduction by 2030 through efficiency and implement an Energy Efficiency Resource Standard.

New Jersey has fallen behind other states when it comes to clean energy and clean energy jobs. We were 2nd in the nation for solar installations and we're now 7th. We had 10,000 jobs in solar and are down to 5,500. We were 7th in energy efficiency and are now 21st. We were supposed to be the first state in the nation to have offshore wind. Even though five years ago Christie signed the Offshore Economic Development Act and the EMP calls for 3,000 megawatts of wind power, the Christie Administration has blocked financing rules for offshore wind. The EMP can allow us to adhere to the law to reduce greenhouse gas emissions. The Global Warming Response Act requires the state to reduce GHGs from electricity 80 percent by 2050. We can re-enter the Regional Greenhouse Gas Initiative (RGGI), implement the Off Shore Wind Law, and increase the Renewable Portfolio standard for solar. Wind is the most cost effective way to achieve our goals. We have enough to meet a third of energy needs. By adopting the strong commitment to renewable energy in the updated EMP, our state can be there again.

The 2011 update should include building no new fossil fuel power plants. The EMP should be changed to phase out use of coal completely. By retiring the dirty coal plants like the Mercer and Hudson Generating Stations, we can prevent serious health impacts, especially near environmental justice communities. According to the report Toll from Coal, 531 people in New Jersey die each year from coal related deaths. There are 445 hospitalizations and 987 heart attacks in New Jersey from coal plants. This summer, New Jersey had over ten Ozone Action Days where sensitive individuals were told to stay inside because of poor air quality.

All power plants in New Jersey should be required to install closed loop systems and depletive use from discharging superheated water must be ended. By using systems like cooling towers, this will prevent loss of water and protect ecosystems from impingement and fish kills. More importantly, it will reduce chemical pollution like metals from entering our Bays and waterways

Instead of pushing for destructive pipelines and fossil fuel plants, our existing coal and natural gas plants need to be closed and changed to renewable. Fracking for natural gas creates devastating health impacts to surrounding communities and the frack waste can end up in New Jersey. The old plan shifted us from increasing renewable energy to more natural gas. Since the 2011 EMP, three new natural gas plants are being built. New Jersey should be ending subsidies for traditional fossil fuel power sources and investing in renewable energy and demand response

By pulling out of RGGI, our state lost $1.25 million in revenue and more than 1,800 jobs. New Jersey was poised to be the first state in the nation with offshore wind. Offshore wind projects could provide a third of our energy needs and provide 3,000 megawatts worth of energy by 2020, which is in the EMP. If we had that energy supply, we could close down the Oyster Creek Nuclear Power Plant, BL England, and not have to open the three natural gas plants being built.

RGGI worked; New Jersey received over $40 million a year and it created over 1,800 jobs. It reduced carbon pollution by 18 million tons. RGGI will help implement the EMP and Clean Power Plan goals and provide funding for energy efficiency. Energy efficiency cuts peak demand, preventing the use of weaker plants, which prevent blackouts, air pollution, and saves New Jersey residents' money.

President Obama's Clean Power Plan (CPP) calls for only a modest 23% reduction in greenhouse gases by 2030 in New Jersey. We can achieve even more than that goal and have the tools in place to go above the federal requirements.

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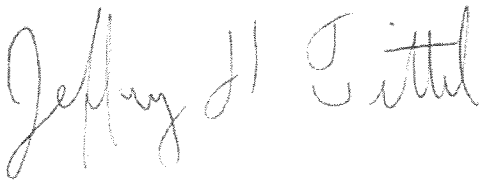
Thank you for considering these comments and we look forward to discuss them further with your staff.

Sincerely,



Jeff Tittel
Director, New Jersey Chapter of the Sierra Club

Harris, Consowella

From:	Amy Hansen <a
Sent:	Monday, August 24, 2015 12:10 PM
To:	EMPupdate
Cc:	Amy Hansen; Alison Mitchell; Tom Gilbert
Subject:	2011 Energy Master Plan comments
Attachments:	2011 EMP comments NJCF 8.2015.doc

August 24, 2015

New Jersey Board of Public Utilities
44 S. Clinton Avenue
Trenton, NJ 08625

Re: 2011 Energy Master Plan

To Whom It May Concern:

New Jersey Conservation appreciates the opportunity to comment on the 2011 Energy Master Plan. New Jersey Conservation protects natural areas and farmland through land acquisition and stewardship, promotes strong New Jersey land use policies and forges partnerships to help safeguard clean water and other natural resources.

Since 1960, we've saved more than 130,000 acres of land from sprawl development. Today, we are fighting a new type of sprawl: energy infrastructure. Pipelines, transmission lines and transfer stations now threaten thousands of acres of land. Nowhere is this more apparent than the current rush to build more gas pipelines in New Jersey. The PennEast pipeline alone would cut through 3,300 acres of preserved land, leading to the fragmentation of forests and farms, disturbance to streams and water quality, and industrialization of the landscape.

Our state's energy policy has a great potential to provide solutions that decrease these threats to our ecologically important and sensitive lands, lands that provide critical benefits such as clean drinking water, tourism and recreational opportunities, wildlife habitat and historical, scenic and cultural landscapes.

The 2011 Energy Master Plan (EMP) must be updated. We urge the state to create a new EMP that truly reflects the world we live in today and provides our children and future generations with a clean energy legacy of which we can be proud.

How are we going to accomplish this and address climate change at the same time?

First, by increasing our use of the best type of energy possible, energy conservation and efficiency. The EMP points us in this direction, with its goal of rewarding energy efficiency and conservation and reducing peak demand while driving down energy costs.

We agree with the EMP, as it states:

> "The best way to lower individual energy bills and collective energy rates is to use less energy. Reducing energy costs through conservation, energy efficiency, and demand response programs lowers

the cost of doing business in the State, enhances economic development, and advances the State's environmental goals."

However, we have yet to fully tap into these benefits. In New Jersey, we need to make an absolute priority of implementing energy efficiency and conservation – the EMP can help us do this by increasing energy reduction goals, to, at minimum, 30% by 2030, and more going forward. We already have a mechanism in place to fund clean energy and efficiency programs, the Societal Benefits Charge (SBC). The SBC must be permanently dedicated and not diverted to other uses as it has been for years. Enacting an Energy Efficiency Resource Standard and fully implementing the Combined Heat & Power program are additional obvious steps that New Jersey must take now. These programs represent a true win-win for the economy and the environment.

California's landmark energy efficiency programs have reduced personal electricity use by 40 percent below the national average and resulted in $56 billion in household energy savings. By allowing expenditures to be redirected toward other goals and services, energy efficiency helped create 1.5 million jobs with a total payroll of $45 billion.

According to the National Association of State Utility Consumer Advocates, with or without the Clean Power Plan, states that pursue renewables and energy efficiency will see smaller increases in total electric-system costs through 2030 than they would with any other investment strategy.

Energy efficiency and conservation provide numerous benefits while also saving land and critical natural resources. New Jersey Conservation applauds the EMP's clear recommendation that preserved farmland and open space remains protected in perpetuity. It is also critical that additional farmland, forests and open space be permanently preserved, and that renewable solar facilities be located appropriately on rooftops, abandoned shopping centers, parking lots, brownfields and landfills that are located near existing infrastructure.

The EMP does not support the use of ratepayer subsidies to turn productive farmland into industrial solar facilities. This is excellent policy, and should be expanded to include forests as we should not be using green fields or forests for development, not even renewable energy development given the numerous more appropriate locations available in our state. The importance of preserving more natural carbon sinks such as forests and other greenfields to combat global warming will only increase in the future.

We need to ramp up our Renewable Portfolio Standard (RPS) from 22.5% so that at least 30% of our power comes from renewable sources by 2020. New Jersey can achieve this important goal by investing more in solar and wind, clean technologies that will stimulate our economy, produce jobs and steward our state's rich natural resources.

Renewables and efficiency are becoming cost competitive with natural gas, and promise to be the low cost energy source in the near future. The Advanced Energy Economy, a consortium of leading businesses, recognizes that solar will continue to grow based on declining costs.

We see a very bright future, one that accomplishes an even more aggressive goal of an 80% RPS by 2050. Our state boasts many excellent colleges and universities - by tapping more extensively into these resources, New Jersey will become a hub of clean energy innovation.

The EMP calls for more capitalization in emerging technologies – one of which is energy storage, a winning solution to capture energy from solar installations. We support more research funding for such energy resiliency technologies. According to GreenTechMedia (http://www.greentechmedia.com/articles/read/what-advanced-microgrid-solutions-plans-to-do-with-5000-tesla-powerpack-bat), batteries can store power at night or during

peak solar production hours and then discharge it to meet peak needs without burning natural gas and emitting carbon dioxide or other pollutants. Batteries can also be installed in much smaller increments than a single new power plant, and can be located at specific trouble spots on the grid. These advantages could outweigh the current high costs of batteries, which are sure to come down over time.

One example of the importance of keeping solar systems operational in times of grid failure was seen during Hurricane Sandy, when Advanced Solar Products' arrays attached to a diesel generator allowed a Bayonne school to function as an overnight shelter for those without power in their homes.

Finally, New Jersey is missing out on millions of dollars as well as the job creation enjoyed by the other states still enrolled in the Regional Greenhouse Gas Initiative (RGGI). All our residents would benefit if we re-enrolled in that successful program. New Jersey Conservation worked with the legislature when the Global Warming Response Act was drafted to ensure that ten percent of the Initiative's carbon auction proceeds would fund forest stewardship plans and salt marsh restoration for carbon sequestration purposes. The auction proceeds would be a boon for these and other programs that could help create robust and innovative partnerships with the other RGGI states to achieve aggressive energy reduction and decreased greenhouse gas emission goals.

Major clean energy investments are urgently needed in response to global warming and should be made now, instead of further commitments to natural gas and its infrastructure. We will all benefit from these actions. Unfortunately, the EMP's over-reliance on natural gas runs the risk of locking our state into the wrong energy path, with the expansion of natural gas pipelines designed to last for decades, when we need to transition rapidly from fossil fuels to renewables and energy efficiency.

Several new gas pipelines have recently been constructed in central and northern New Jersey and three more are under review by the Federal Energy Regulatory Commission or the New Jersey Board of Public Utilities. These pipelines impose huge costs on our environment and communities, from damage to preserved lands and natural resources, to impacts on landowners, public health and safety.

There is much debate about whether the gas to be carried by these proposed pipelines is needed in New Jersey, or is just the Marcellus tail wagging the energy dog. A recent analysis conducted by Labyrinth Consulting found that the proposed PennEast pipeline alone would result in a 53 percent surplus beyond current demand in Pennsylvania and New Jersey and concluded that the gas is bound for other markets, including export overseas.

The current rush to build multiple new pipelines in New Jersey would likely lead to significant over-building, resulting in supply that far exceeds actual needs, and causing irreparable harm to our communities. Ratepayers and communities would suffer the costs when pipelines become obsolete as the price of renewables decreases even further, and are needed to meet carbon reduction goals to address climate change.

We have been very concerned to learn that pipelines are currently considered in isolation with no single state or federal entity looking at the bigger picture to determine if all this gas is needed, and whether better alternatives exist. This is like letting corporations build toll roads wherever they want without a transportation plan. The BPU could have an important role to play here if it had a mandate and the capacity to develop a comprehensive energy plan for the state.

We are in a new era for energy in New Jersey and nationally. We are at a fork in the road and we need to decide if we are going to head on the more destructive and expensive path that relies on natural gas through a harmful and expanded network of pipelines or if we will become a leader in the transition to this new energy era by fully implementing renewables and efficiency.

The EMP should help us catalyze a rapid transition to a positive future so we can meet the state's energy needs and immediately begin to lower carbon emissions.

Thank you again for the opportunity to weigh in on this very important policy that will have impacts for years to come. Please contact us at [redacted] ith any questions or concerns.

Sincerely,

Tom Gilbert, Campaign Director for Energy, Climate and Natural Resources

Amy Hansen, Policy Analyst

Bamboo Brook
170 Longview Road
Far Hills, NJ 07931
908-234-1225
908-234-1189 (Fax)
info@njconservation.org
www.njconservation.org

New Jersey Conservation
FOUNDATION

August 24, 2015

New Jersey Board of Public Utilities
44 S. Clinton Avenue
Trenton, NJ 08625

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Sincerely,

Tom Gilbert, Campaign Director for Energy, Climate and Natural Resources

Amy Hansen, Policy Analyst

From: Toni Granato [redacted]
Sent: Monday, August 24, 2015 12:32 PM
To: EMPupdate
Cc: Jeff Tittel
Subject: New Jersey Sierra Club Comments on 2011 Update to Energy Master Plan
Attachments: New Jersey Sierra Club Comments on 2011 Update to Energy Master Plan.pdf

New Jersey Sierra Club

[redacted]

August 24, 2015

President Richard Mroz

New Jersey Board of Public Utilities

PO Box 44 S. Clinton Ave

Trenton, NJ 08625

RE: New Jersey Sierra Club Comments on 2011 Update to Energy Master Plan

Dear President Mroz:

Thank you and the Board of Public Utilities for accepting these comments. We believe it is important that the BPU update the 2011 Energy Master Plan, since 2011 we have experienced devastating climate impacts especially from Hurricane Sandy. This makes it even more crucial that we reduce greenhouse gases and carbon pollution to protect us from future climate impacts. The major change between the 2008 EMP and 2011 is that it reduced our renewable energy goals and increased fossil fuels. This shifted the state from utilizing renewable energy to natural gas. We have the tools to reduce greenhouse emissions and make sure that New Jersey's energy future is built on clean renewable energy and energy efficiency. Our state was on track to meet the clean energy goals

outlined in 2008, but instead this setback has cost the state economic stability and critical pollution reductions. We believe the EMP must go back its original goals to achieve 30 percent renewable energy and 20 percent energy efficiency by 2020.

New Jerseyans are demanding action on climate change, want green job creation, and a commitment to reducing our dependence on fossil fuels. New Jersey can and will meet these goals, but it will take continued leadership and an Energy Master Plan that moves us forward. We must expand our Renewable Portfolio Standard to meet the 30 percent by 2020 goal. The plan must go beyond the 2020 horizon and adopt 80 percent renewable energy by 2050. These goals will allow the state to comply with the Global Warming Response Act. Currently the state does not have an energy efficiency standard. We need to push for a 20 percent reduction in energy use by 2020 and 30 percent reduction by 2030 through efficiency and implement an Energy Efficiency Resource Standard.

New Jersey has fallen behind other states when it comes to clean energy and clean energy jobs. We were 2nd in the nation for solar installations and we're now 7th. We had 10,000 jobs in solar and are down to 5,500. We were 7th in energy efficiency and are now 21st. We were supposed to be the first state in the nation to have offshore wind. Even though five years ago Christie signed the Offshore Economic Development Act and the EMP calls for 3,000 megawatts of wind power, the Christie Administration has blocked financing rules for offshore wind. The EMP can allow us to adhere to the law to reduce greenhouse gas emissions. The Global Warming Response Act requires the state to reduce GHGs from electricity 80 percent by 2050. We can re-enter the Regional Greenhouse Gas Initiative (RGGI), implement the Off Shore Wind Law, and increase the Renewable Portfolio standard for solar. Wind is the most cost effective way to achieve our goals. We have enough to meet a third of energy needs. By adopting the strong commitment to renewable energy in the updated EMP, our state can be there again.

The 2011 update should include building no new fossil fuel power plants. The EMP should be changed to phase out use of coal completely. By retiring the dirty coal plants like the Mercer and Hudson Generating Stations, we can prevent serious health impacts, especially near environmental justice communities. According to the report Toll from Coal, 531 people in New Jersey die each year from coal related deaths. There are 445 hospitalizations and 987 heart attacks in New Jersey from coal plants. This summer, New Jersey had over ten Ozone Action Days where sensitive individuals were told to stay inside because of poor air quality.

All power plants in New Jersey should be required to install closed loop systems and depletive use from discharging superheated water must be ended. By using systems like cooling towers, this will prevent loss of water and protect ecosystems from impingement and fish kills. More importantly, it will reduce chemical pollution like metals from entering our Bays and waterways

Instead of pushing for destructive pipelines and fossil fuel plants, our existing coal and natural gas plants need to be closed and changed to renewable. Fracking for natural gas creates devastating health impacts to surrounding communities and the frack waste can end up in New Jersey. The old plan shifted us from increasing renewable energy to more natural gas. Since the 2011 EMP, three new natural gas plants are being built. New Jersey should be ending subsidies for traditional fossil fuel power sources and investing in renewable energy and demand response

By pulling out of RGGI, our state lost $1.25 million in revenue and more than 1,800 jobs. New Jersey was poised to be the first state in the nation with offshore wind. Offshore wind projects could provide a third of our energy needs and provide 3,000 megawatts worth of energy by 2020, which is in the EMP. If we had that energy supply, we could close down the Oyster Creek Nuclear Power Plant, BL England, and not have to open the three natural gas plants being built.

RGGI worked; New Jersey received over $40 million a year and it created over 1,800 jobs. It reduced carbon pollution by 18 million tons. RGGI will help implement the EMP and Clean Power Plan goals and provide funding for energy efficiency. Energy efficiency cuts peak demand, preventing the use of weaker plants, which prevent blackouts, air pollution, and saves New Jersey residents' money.

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Thank you for considering these comments and we look forward to discuss them further with your staff.

Sincerely,

Jeff Tittel

Director, New Jersey Chapter of the Sierra Club

New Jersey Farm Bureau
168 West State St. – Trenton, NJ 08608 – Phone: 609-393-7163 – Fax: 609-393-7072 – Email: mail@njfb.org

August 21, 2015

Irene King Asbury
Secretary
New Jersey Board of Public Utilities

rec'd 8/24

Re: Energy Master Plan (EMP) update

New Jersey Farm Bureau (NJFB), the state's largest agricultural organization representing more than 10,500 farm families, affiliated agribusinesses and supporters of agriculture, appreciates the opportunity to provide comments on the update to New Jersey's Energy Master Plan (EMP).

In general, we believe that significant progress has been made since the EMP was last updated in 2011, and would therefore encourage that the goals and policy recommendations included in that plan be maintained and supplemented going forward.

Going forward, we continue to favor a balanced approach for electricity generation that includes the continued expansion of natural gas availability statewide, the promotion of energy efficiency strategies among all end-user segments and market-driven incentives for renewable energy generation that do not disproportionately drive up costs for all consumers.

Without a doubt, our farmer-members consider addressing the high cost of energy throughout the state to be the most important feature of all issues addressed by the EMP.

In particular, the EMP should continue its focus on reining in energy costs. An oft-cited impediment to economic growth statewide, energy costs appear to be normalizing, thanks in large part to the proliferation of domestically-sourced fuels and a transition to more rational, market-based inducements for renewable energy generation. New Jersey, which ranked an unenviable 4th nationwide in 2011 for overall energy costs according to BPU's own data, now ranks 10th. A modest improvement, but progress nonetheless for industries including agriculture that rely on affordable energy to remain competitive.

Even despite these improvements since 2011, electricity prices remain prohibitively high overall. New Jersey slid from 4th to 10th in large part because electricity costs in other states went up. Therefore, this update to the EMP should continue to prioritize strategies to control energy costs.

On the subject of renewable energy, we note that although the state has transitioned away from direct subsidies for solar and wind energy generation projects, it has nevertheless kept pace with the goals set forth in the renewable energy portfolio standard, goals that were reaffirmed as part of the 2011 EMP. With nearly 15% of the

state's electricity now derived from renewable sources, New Jersey is on target to meet its goal of achieving a renewable energy threshold of 22.5% by 2021.

The results of the state's continued commitment to this balanced approach for electricity generation and supply speak for themselves. Not only have costs come down and renewable energy generation targets been met, the state has also kept overall emissions largely in-check. This is evidenced by the BPU's finding that New Jersey ranks 46th overall in emissions from electric generation despite being the 22nd largest electricity generating state in the country. This illustrates that the appropriate mix of "conventional" (e.g. natural gas, nuclear) and renewable energy sources can yield positive outcomes not only for the state's economy, but also the environment.

The continued ascent of renewable energy as a key feature of the state's electric supply has been driven by the ongoing expansion of solar. Drastic reductions in overall project costs coupled with increased stability in the solar renewable energy credit (SREC) marketplace have further solidified solar energy's integral role in New Jersey's overall energy economy. Many farm operators have taken advantage of this technology as a means of establishing partial energy independence, leveraging the market-based incentives offered in New Jersey with federal tax credit and loan programs to generate all or part of their electricity needs on-site.

Conversely, the push for utility-scale farmland conversion projects (so called "solar farms") has, for the most part, subsided since the adoption of the 2011 EMP. This is due in large part to the policy included therein discouraging such projects on farmland. In general, NJFB supports this policy position, favoring on-farm renewable energy projects cited on marginal farmland (soils) that are complementary in scale with the needs of the farm business. We therefore believe that this policy should be reaffirmed in this update to the EMP.

The emergence of solar energy as an option for farmland owners notwithstanding, added attention should be given to farm- and woodland-based biomass energy projects going forward. The state should continue to explore and incentivize direct-combustion and waste-to-energy projects utilizing farm- and woodland-derived feedstocks (e.g. anaerobic digest from a combination of agricultural and waste biomass sources; pelletization and direct-combustion of biomass).

Such projects are impeded by unnecessary regulatory hurdles that have become a disincentive to biomass renewable energy generation (e.g. issuance of violations for air permitting standards that don't yet exist for on-farm operation of biomass pelletizers and boilers used to generate heat as a source of on-farm renewable energy). Coordinated efforts between the BPU and NJDEP are needed to identify and remove these unnecessary regulatory road-blocks. Should the issue of air permitting for such projects be addressed, we believe there will be a significant upside for biomass energy development and agriculture throughout the state.

Looking ahead, attention must also be given to energy security and reliability. We therefore appreciate that the BPU has prioritized these goals as part of this ongoing effort to update the EMP. As was evidenced in the wake of recent storm events like Superstorm Sandy, Hurricane Irene and the "derecho" that tore through South Jersey two years ago, the consequences of inadequate access to backup generation can be severe. The state should continue to prioritize exploration of projects to enhance reliability.

This includes proposals to make available additional energy to end-users throughout New Jersey - most notably the pending proposal in South Jersey for a natural gas pipeline to return to service the BL England power plant, which is now before the BPU for consideration - reducing energy costs overall and better insulating the state against catastrophic events in the future.

The EMP provides an important framework for the state's current and future energy needs. The 2011 plan largely "got it right", in our view, pursuing long-overdue reductions in energy costs while maintaining an appropriate mix of incentives for the continued development of market-ready renewable energy projects. That the BPU has prioritized energy security and reliability as a cornerstone of this plan update is but another step in the right direction. This goal, coupled with enhanced attention to biomass energy projects, will further strengthen the foundation laid in the 2011 plan.

With the modest adjustments proposed herein, we believe that the principals set forth in the 2011 EMP can continue to serve as the roadmap for energy affordability and dependability statewide.

Thank you.

Ryck A. Suydam

Ryck Suydam
President
New Jersey Farm Bureau

#

Cc: Office of the Honorable Chris Christie, Governor, State of New Jersey
Office of the Honorable Kim Guadagno, Lt. Governor, State of New Jersey
Douglas H. Fisher, Secretary, New Jersey Department of Agriculture
all members New Jersey State Board of Agriculture
Stefanie Brand, Director, NJ Division of Rate Counsel